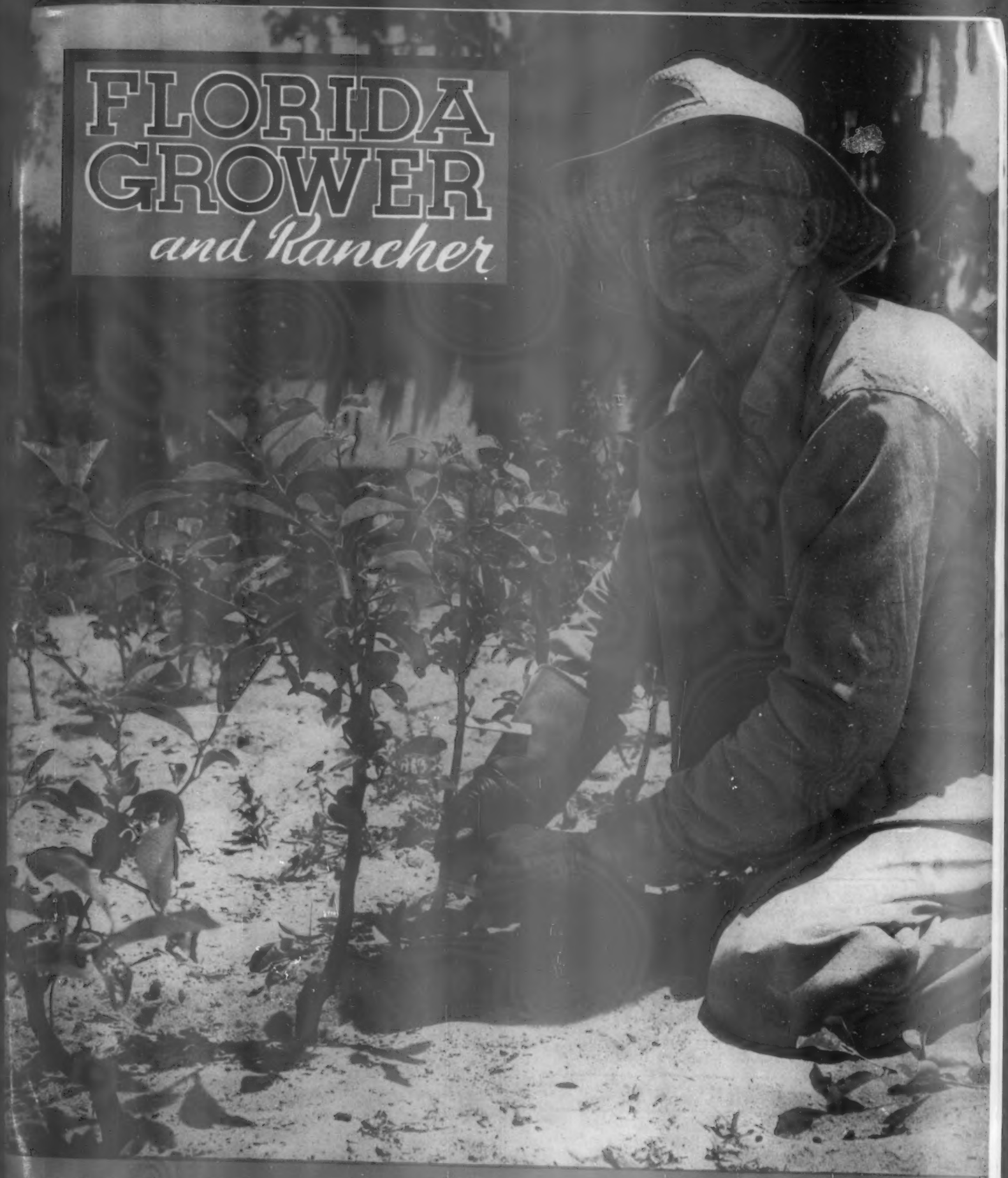
FLORIDA GROWER and Rancher



Pre-Season Planning Issue

What to Do about Bloat

★ ★ ★ ★ ★ ★

Build Fences to Last

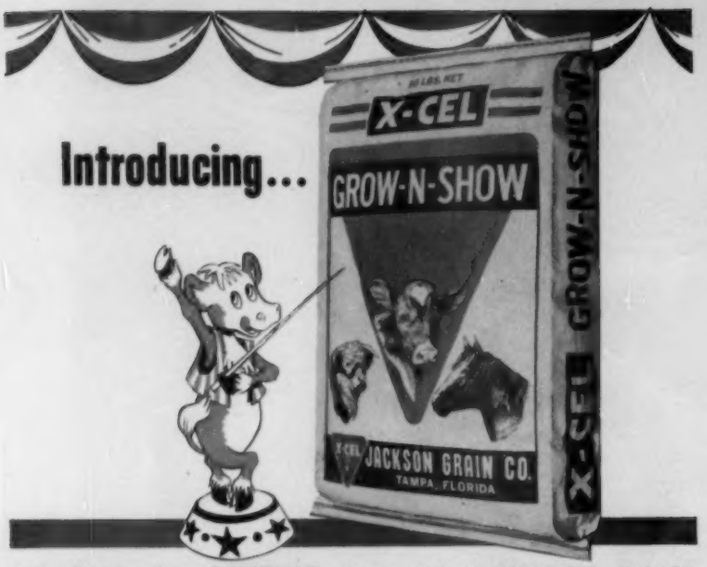
★

★

★

July 1959

Price 10 Cents



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We proudly present . . . X-CEL GROW-N-SHOW, a two-feeds-in-one ration formulated by Jackson Grain and Carnation-Albers Research Farms.

GROW-N-SHOW, a major advance in calf feeding, combines high quality grains and minerals with 25 per cent world-famous Calf Manna, the feed proven best for developing the maximum potential of dairy and beef calves.

Now, with X-CEL GROW-N-SHOW, you eliminate the need for feeding a calf-developing ration *plus* Calf Manna after weaning. Feeding X-CEL GROW-N-SHOW is a perfect method for following the early weaning Calf Manna program which develops the rumen more quickly, helps eliminate scours, and saves the time necessary for mixing liquid milk replacers.

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The Cover . . .

This month's cover shows C. O. (Cecil) Clark of Dundee who has a reputation as an outstanding budder of citrus nursery stock. His friends call him "Gator," a name bestowed in childhood because he constantly waded the lakes and marshes hunting alligators and fishing.

For information on how the citrus Budwood Registration Program works, see page 17 of this issue.

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Coming Events

July 3-5: Silver Spurs Rodeo, Kissimmee.
July 4-5: All-Florida Rodeo, Arcadia.
July 11: Florida Landrace Sale, Live Oak.
July 14: Florida Grape Growers Association Show & Meeting, Leesburg.
July 20-24: Junior Citrus Institute, Camp Cloverleaf.
Aug. 3-8: 4-H Tractor & Electric Clinic, Camp Timpooche.
Aug. 3-8: Wildlife Institute, Camp McQuarrie.
Aug. 7: Gatrell Duroc Sale, Fairfield.
Aug. 10-12: Florida Beekeepers' Institute, Camp Cloverleaf.
Aug. 10-14: Florida Citrus Institute, Camp McQuarrie.
Aug. 13: West Florida Dairy Show, Chipley.
Aug. 13: Florida Cattlemen's Institute, Camp Cloverleaf.
Aug. 17-22: Florida Poultry Institute, Camp McQuarrie.

How smart are YOU?

1. "Gotham" is a nickname for what famous city?
2. Why are the early morning hours the most critical time of the day during an illness?
3. For whom was Saturday named?
4. Who is said to have introduced the broom into America?
5. For what is *dwt* the abbreviation?
6. Where was cellophane first made?
7. Name the three secondary colors.
8. What popular sport was purely an amateur sport until 1926?
9. The days extending from July 3 to August 11 are named for what animal?
10. Which is the world's largest bridge?

(Answers on Page 16)

FLORIDA GROWER and RANCHER

TAMPA, FLORIDA — JULY, 1959

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"I hope he can farm better than he sings."

"To be prepared for war is one of the most effectual means of preserving peace."

SAY YOU SAW IT ADVERTISED IN FLORIDA GROWER & RANCHER

Pre-Season Planning:

Basic Citrus Library Helps Growers Solve Many Problems

COUNTLESS works have been published concerning the citrus industry in Florida and its myriad problems.

As a matter of fact, so many works have been published that the average citrus grower hardly knows which reference to turn to!

For this reason, we asked Dr. Herman J. Reitz, horticulturist in charge of the Lake Alfred Citrus Experiment Station, to compile a basic reference library for citrus growers. His selections are listed below:

The Citrus Industry, Volumes I and II; books edited by Webber and Batchelor, published in 1943 and 1948 by the University of California Press, Berkeley, California.

Citrus Industry of Florida, booklet by A. F. Camp and others; published in 1955 by the Florida State Department of Agriculture, Tallahassee, Florida.

Florida Guide to Citrus Insects, Diseases, and Nutritional Disorders in Color, book edited by R. M. Pratt; published in 1958 by the Florida Agricultural Experiment Station, Gainesville, Florida.

Proceedings of the Florida State Horticultural Society, one volume published annually; available from the Publications Secretary, Ralph P. Thompson, Winter Haven, Florida.

Citrus Diseases and Their Control, book by H. S. Fawcett; published in 1936 by McGraw-Hill Book Company, New York, New York.

Handbook of Citrus Diseases in Florida, Bulletin 587; by L. C. Knorr, R. F. Suit, and E. P. DuCharme; published in 1957 by the Florida Agricultural Experiment Station, Gainesville, Florida.

Subtropical Entomology, book by Walter Ebeling; published in 1950 by Lithotype Press Company, 523 Folsom Street, San Francisco, California.

Insects of Citrus and Other Subtropical Fruits, book by H. J. Quayle, published in 1938 by Comstock Publishing Company, Inc., Ithaca, New York.

Insects and Mites Found on Florida Citrus, Bulletin 591; by J. T. Griffiths and W. L. Thompson; published in 1957 by the Florida Agricultural Experiment Station, Gainesville, Florida.

Better Fruit Program, Spray and Dust Schedule; leaflet published annually in revised form by the Florida Citrus Commission, Lakeland, Florida.

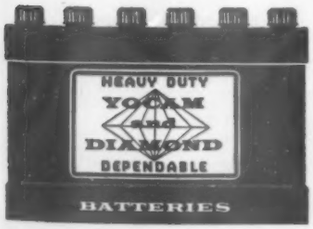
Fruit Nutrition, book edited by N. F. Childers; published in 1954 by Horticultural Publications, Rutgers University, New Brunswick, New Jersey.

Recommended Fertilizers and Nutritional Sprays for Citrus, Bulletin 536A; to be published soon by the Florida Agricultural Experiment Station, Gainesville, Florida.

Chemistry and Technology of Citrus, Citrus Products and Byproducts, Agricultural Handbook No. 98; published in 1956 by the United States Department of Agriculture, Washington, D. C.

Few things are more dangerous than a train of thought that carries no freight.

BMA APPROVED



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WE OUT SELL...BECAUSE
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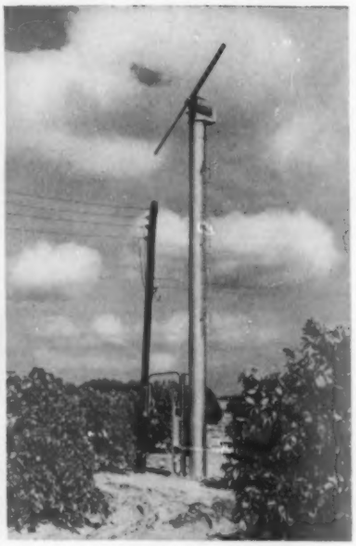
What you should know about wind machines for proper frost protection

TROPIC BREEZE GROUND POWERED MODEL

TROPIC BREEZE ENGINE ON TOP MODEL
SINGLE OR DUAL POWERED UNITS AVAILABLE



TROPIC BREEZE ELECTRIC MODEL—
COMPLETELY AUTOMATIC

Don't Skimp on Horsepower

Six to eight horsepower per acre is a minimum requirement for safe frost protection. This figure has been substantiated by all published findings. Machines employing two fan blades must have engines that can deliver proper horsepower to each fan. For example, a wind machine with a single eighty horsepower engine and two fan blades can deliver no more than forty horsepower on each fan.

Large Diameter Fan Blades Are Important

The longer the fan blade the bigger the jet of warm air that is moved into the grove or orchard. Small propeller-type blades cannot move the volume of air longer blades are capable of. Turning at 590 rpm (recommended speed for best results) these longer blades produce 25% more air in the grove or orchard than the propeller type.

Buy Only a Proven Machine

There have been many wind machines built. Most types have come and gone. As a wind machine buyer, be skeptical of any machine that has not fully proven itself during a freeze. A wind machine that has not performed under severe freezes and in a number of different locations is a risky purchase.

Let Trained Personnel Help You

Terrain, wind drift, closeness of planting, and height of trees are all important factors to be studied before proper installations can be made. Qualified factory field engineers are available to study your groves and make recommendations. This service is made without charge or obligation.

Why the FMC TROPIC BREEZE Wind Machine for your grove or orchard?

1. *They are fast.*
Frost protection starts 3 to 5 minutes after machine is turned on.

2. *They are proven.*
Twenty years of manufacture, thousands of installations, plus conclusive documented results are behind every machine you buy.

3. *They cost less to operate.*
Running costs can be measured in a few cents per acre per hour of operation. And one man, not a crew, is all that is required to supervise entire operation.

Remember—Every major advance in wind machines for frost protection has come from the makers of Tropic Breeze Wind Machine.

Send for illustrated literature — now!

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City_____ Zone_____ State_____

Pre-Season Planning:

Simplify Your Records

Stop guesswork farming and save tax dollars

FARM RECORDS are business yardsticks; they provide handy maps to help chart better financial courses.

Some form of record is a *must* for any money-making enterprise. It's the only way to compute capital gains, depreciation, and taxes.

Remember, simple records are usually best. Regularity, completeness, and accuracy are essential.

Three basic record-keeping tools, which will put anyone on the right track, are:

Farm plan for a long-term look at the future and a base for efficient, intelligent planning. This keeps the farmer or rancher always in sight of his immediate goals.

A *budget*, listing a general idea of the money available for each enterprise, should be established at the outset of each year. This enables the record keeper to work out a controlled spending schedule.

A *journal* is the place for all receipts and expenses, cash or non-cash. An effective journal is always up-to-date, listing each enterprise in a separate column. This allows fast, thorough evaluation of each project after "posting" periods.

Supplemental record-keeping tools should include the following:

A *diary* serves as a "memory jogger" when income tax time rolls around. Keep it daily or weekly, according to convenience.

List only important events in a diary, but give complete details. Its form may range anywhere from notes on a calendar pad to an elaborate day book.

Written agreements before entering into any joint business transactions are useful. Make sure everyone's individual responsibilities are spelled out. File with related journal and budget entries.

Keep a *labor record* containing notations of all self-labor, hired labor, and machinery costs. This will help estimate the operator's salary.

Before closing any enterprise, *take inventory*. Record the values of equipment, stock, feed, and other items scheduled for "carryover" into new record books. The closing inventory should be the same as the opening inventory for the next year.

Use a *final summary* as a "catch-all" medium. In it list the scope of each enterprise, total receipts, expenses, and labor income derived from journal, inventory, and labor records. Also list any notes which may become payable or receivable during the year.

Records pave the way for improved planning and simplified management. Here are some time-saving tips for the farm's ledger hand:

Post regularly. Adopt a system and follow it. Less time, work, and worry are required when a job is done regularly and systematically.

Evaluate your needs. No two farms are alike and no "standard set of rules" will fill the bill completely. Make the adaptations necessary to your situation.

Keep records convenient. Form the habit of replacing books, pencils, and folders after every posting session.

Be strictly business. A good mental attitude is essential for accuracy. Work carefully and seriously.

Pay by check. This cuts down cash handling and creates permanent receipts. Make notations concerning the reason for withdrawal.

Ask for invoices. Don't be elaborate, just keep them in order. A file of invoices for all items purchased and sold will save many headaches.

Don't forget the *adding machine.* Rental of adding machines is a tax deductible item, and this mechanical marvel is handy for making page totals or annual summaries.

Round all figures to the nearest dollar. This is a time saver in transferring page totals to tax forms and summary sheets. And the Internal Revenue Service endorses this labor lightener.

(Adapted from The National Future Farmer magazine.)

* * *

Adjust Seed Drills

When seeds are treated with insecticides, they flow through the drill a little slower than untreated seed. Thus fewer seeds per acre, rather than reduced germination, may be the cause of smaller crop stands from insecticide-treated seed.

Such is the finding of tests conducted by the USDA's Agricultural Research Service in cooperation with the Oklahoma Experiment Station. Accordingly, the researchers advise:

Adjust seed drills to allow for the decrease in seed flow. And enlarge the opening in the seed hopper floor to increase the flow of seeds through the drill.

Laboratory tests have shown that there is no difference in the rate of germination of treated and untreated seed.

FORD

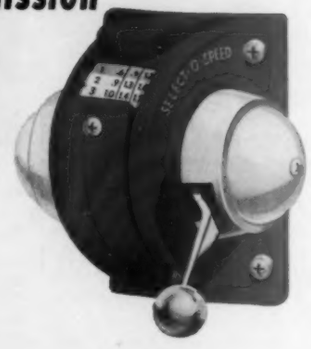
FORAGE HARVESTERS

Chop up to

FORD SELECT-O-SPEED

World's most advanced tractor transmission

ONLY FORD HAS POWER SHIFT TO ANY GEAR!



10 SPEEDS FORWARD... 2 IN REVERSE

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• LONGER TERMS • LOWER RATES

You can buy Ford tractors and implements with only 20% down... *one-fifth* of the purchase price! Many other liberal plans are available. Easy monthly payments can run up to 36 months. There's even a *skip payment plan* to ease you over low income periods. You can now take up to 4 crop years to pay for major purchases. Buy that Ford *when you need it!*

DON'T DELAY...BUY FORD TODAY!

Powermaster 3-4 plow tractor and direct cut Ford forage harvester

40 tons per hour!

Ford forage harvesters in corn will keep four wagons and a blower going at top capacity. Ford has more extra features . . . more reasons why you can get your chopping job done fast. Here's why a Ford will do the best chopping job ever done on your farm:

- ***High capacity***—The first thing to look for in a chopper . . . and the first thing most Ford owners talk about. Ford harvesters will chop as fast as you can put it in the silo. Yes, and that's even at the short ⅜-inch cut for the best packing silage!
- ***Less power needed***—Get more done in good weather . . . get more done in bad weather, too. Because they're compact, light weight and close coupled, Ford's pull easier in wet or soft soil. They'll often go through where other machines bog down.
- ***Even feed—no wrapping***—Forage travels shorter distance to cutter than any other make. Another reason why you need less power!
- ***Forever-sharp knives***—Still sharp after 1000 tons . . . and still sharp when worn to the last bit. Built-in sharpener does it, and saves more power, too. Spiral knives cut uniform ⅜ to 4-inch lengths.
- ***Plug-proof blower***—Four blade 30-inch blower moves forage to the load as fast as you can chop. It's separate from cutter, has second air intake for that extra boost that helps load up fast.
- ***Quick-change attachments***—Whether you want to chop dry hay, cut direct, or chop row crops, you can drive right in, fasten the unit in a jiffy.
- ***Handy controls***—Swivel discharge spout without leaving tractor seat! Adjusting and lifting controls located within operator's reach.

It's easy and profitable to own a Ford forage harvester ...try one on your farm...see for yourself!

FORD FORAGE HARVESTER WITH ROW CROP ATTACHMENT This 3-in-1 harvester has pick-up, cutter bar and row crop attachments . . . comes with PTO or engine drive. It features adjustable auger, self-adjusting feed rolls, ⅜ to 4-inch cut, built in knife sharpener, quick-shift feed control, 4-way shear bar and separate blower. All this plus 5-position tongue, 3-clearance-position axle.

FORD GRAIN AND FORAGE BLOWER—Up to 40 tons per hour capacity moves grain and forage into storage fast; no need for loads to wait. Available with chain type or new rubberized belt conveyor that eliminates carrying crop material back under table. Conveyor, cross-feed auger and big 40-inch six blade fan all have sealed-for-life bearings. Easy transport with 3-point hitch. Direct PTO drive, no anchoring needed. See it soon!

SEE YOUR NEARBY FORD TRACTOR AND IMPLEMENT DEALER

Citrus CLOSE-UPS

By FRED P. LAWRENCE
Citriculturist
Florida Agricultural Extension Service

Help! The newly-formed Florida Citrus Research Foundation needs help to raise the necessary money to complete the purchase of 500 acres of land in Lake County. This land is urgently needed to expand the State's citrus breeding program; that is, to develop, raise, and test potential new varieties and rootstocks for the Florida Citrus Industry.

If some $200,000 can be raised to purchase and equip this area, the USDA will operate this badly-needed citrus breeding program. Moreover, the State Plant Board will have a location in which the Budwood Registration Program can be expanded.

The Citrus Research Foundation was organized in May and exercised an option on the land in question on June 2nd. Now all it needs is *MONEY* . . .

Officers of the organization are: Al Whitmore, president; John T. Lesley, vice president; Herman Steele, secretary, and Marvin Walker, treasurer-trustee.

All donations are tax-free. They should be sent to: Marvin Walker, Treasurer-Trustee, Florida Citrus Research Foundation, P. O. Box 1111, Lake Wales, Florida.

Won't *you* invest in our future?

"Look Up and Watch the Skirts" Bill Mathews gave this advice to growers attending the sixth annual South Florida Citrus Institution at Camp Cloverleaf on June 3 and 4. Bill's advice had reference to the tops and bottoms of our citrus trees.

To understand the wisdom of this statement, one needs to ride only a short distance on any of the highways traversing our citrus "ridge." The tops of most trees are beginning to be sparsely covered.

Mathews feels that this condition is the result of poor timing and coverage of sprays.

Hints for Summer Planting Thousands of acres of young citrus trees are being planted at this time. Thus it might be well to review the information available on the subject.

Frequent mistakes in the operation are:

1. Digging young trees when they are in an active state of growth. Research information indicates it is best to wait until the trees have no active flushes of growth present.

2. Failure to protect the trees properly from the time they are dug until they are planted. Dr. Gordon Grimm of the USDA points out that trees with some mature leaves left on them will become established much better than trees with no leaves.

He further cautions against letting the foliage and feeder roots dry out before planting. Bare-rooted trees being transported from the nursery to the field should be kept as cool as possible.

Do not allow the wind to whip the tops and dry the roots. Keep the roots covered with damp sphagnum moss, sawdust, or similar materials.

3. Digging more trees than can be quickly transplanted.

4. Failure to supply sufficient water after planting. Apply water immediately upon planting, and at least twice a week (three times is sometimes better) during the next three weeks.

5. Attempting to fertilize the trees at time of planting. Wait until the trees begin to show signs of growth before fertilizing; then use only small amounts of relatively low analysis fertilizers during the first 12 months.

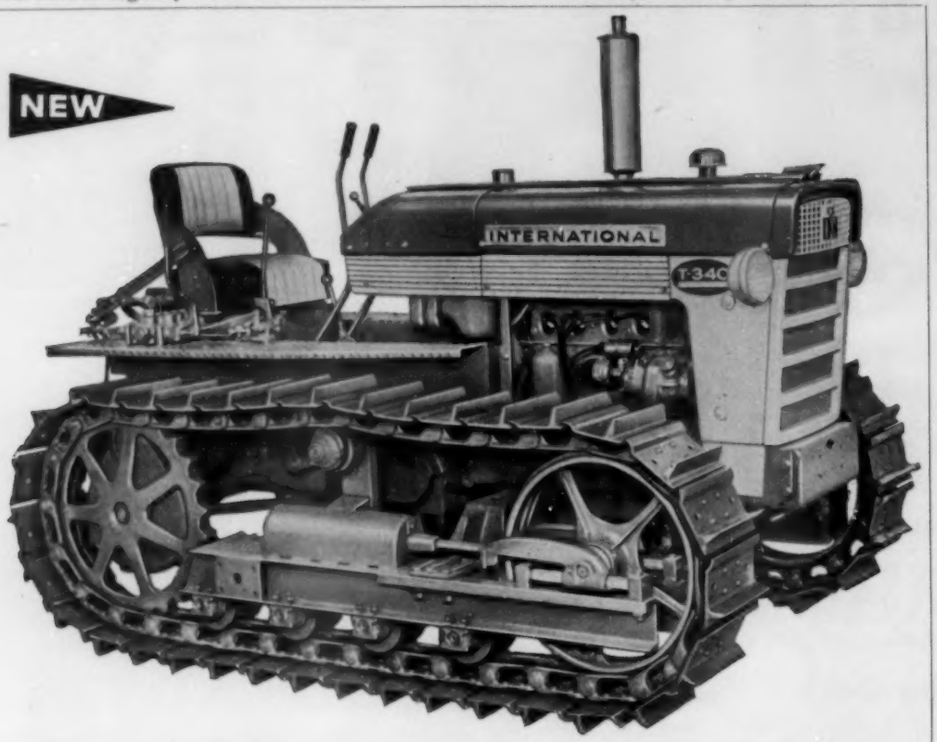
Make frequent applications—one every six weeks—after the tree starts to grow. When the soil becomes dry, it may be well to water before another application is made.

* * *

Grandpa had corns—not time—on his hands.

* * *

The best way out of difficulty is through it.



Now...a 10-speed crawler

New International® T-340 with TA outworks all other 3-4-plow crawlers on your truck farm!

Try the big difference

Farm a gear faster with 10-speed Torque Amplifier drive! Get field proof that the smooth IH 4-cylinder engine delivers as much as five more drawbar horsepower than other crawlers in its class. Ask your IH dealer to demonstrate planetary steering, powerful, high-volume hydraulics, and all the other big crawler features of the T-340!

Get over more ground . . . start crops earlier with a new 10-speed International T-340 crawler!

Famous Torque Amplifier drive hustles your work with 10 speeds forward—two in each gear! And it boosts pull-power up to 45% on-the-go to help you cross soft spots that slow early spring work, or make full-load, U-turns without shift-down delay. Teamed with independent pto, TA also gives pto-sprayers top performance at any speed from 1 to 5.9 mph!

Broad, 5½-foot-long tracks give the T-340 ground-gripping traction even in slippery going. And these light-treading tracks don't pack damp spots or fluffy seedbeds. You can get the T-340 with swinging drawbar or handy 3-point hitch to match your equipment.

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International Harvester Products pay for themselves in use—Farm Tractors and Equipment . . . Twine . . . Industrial Tractors . . . Motor Trucks . . . Construction Equipment—General Office, Chicago 1, Illinois.

More Grapefruit Shipped

FOR THE FIRST TIME in its half-century or more of operations, Florida has shipped more fresh grapefruit than oranges in a harvesting year.

It happened during the season just concluded.

Largely responsible was the terrific demand for oranges by concentrators. They had to replenish their supplies, which were severely depleted as a result of the 1957-58 season's freezing weather.

Sales were also drastically reduced because fresh oranges were a high-priced item in the grocery stores throughout the season.

As a matter of fact, the total amount of Florida oranges sold in fresh form last season was by far the smallest since the early 1930's—when production was only a fraction of what it is now.

Final season figures on total fresh shipments from Florida will be in the neighborhood of 13 million boxes of oranges and 14.5 million boxes of grapefruit. (A "box" holds 1⅗ bushels.)

Percentagewise, the picture is even more interesting.

Grapefruit production last season totaled some 35 million boxes. Consequently the fresh shipments represent slightly more than 40% of the state's grapefruit production.

Orange production totaled slightly more than 84 million boxes. Thus the fresh orange shipments represent only 15% of the season's production.

(Both of the above totals may be adjusted slightly during the summer months by the government's statisticians for bookkeeping purposes, to make the statistics square with actual utilization.)

Last season's orange total was barely a third of the peak year, 1943-44, when just under 35 million boxes were sold with the skins on. The freeze whittled into the 1957-58 season's supplies; shipments in fresh form that year were only a little more than 18 million boxes.

Previously, however, the fresh orange movement had consistently ranged between 25 and 30 million boxes.

Concentrators willingly paid high prices for oranges this past season. This forced fresh fruit shippers to pay equally high prices to get fruit for their packing houses.

As a result, these shippers had to sell at high enough prices to get back their fruit costs plus packing and other charges—and, if possible, a small profit.

It is certain that more growers got more money for more oranges during the 1958-59 season than ever before in the industry's history.

Concentrators paid almost $3.50 a box average delivered to their plants for the oranges they bought from start to finish. This was 90 cents a box more than during the freeze-stricken 1957-58 season.

With such prices prevailing, it is easy to understand why citrus groves brought such high prices when sold. (Some orange groves were quoted at $5,000 to $5,500 per acre.)

Moreover, it explains why so little orange grove property is being offered by growers for sale at any price.

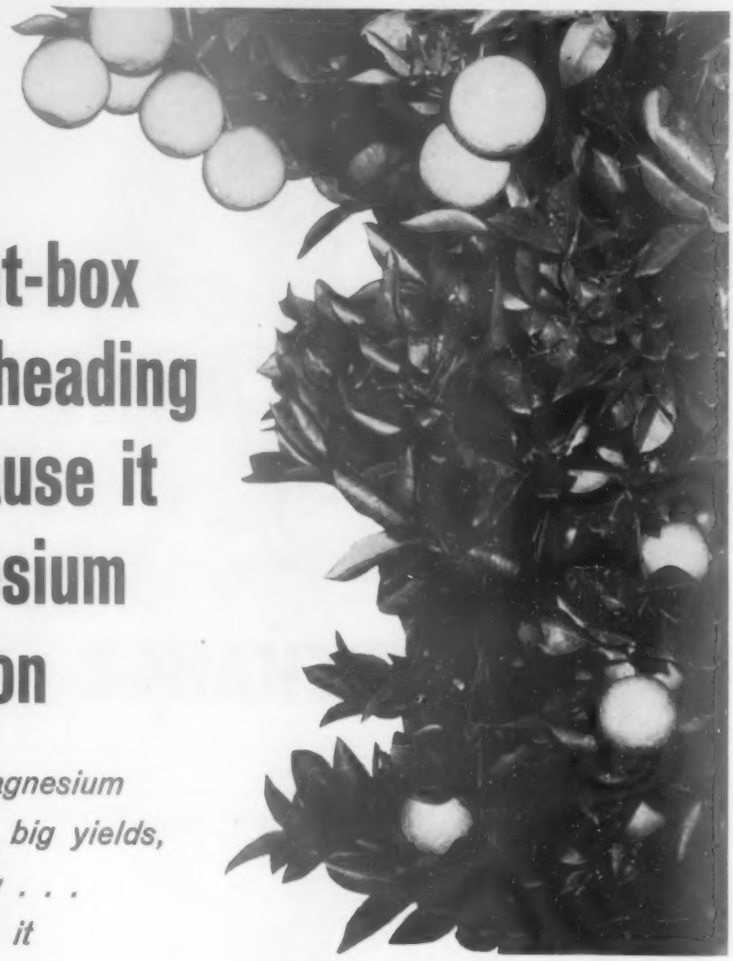
Some industry leaders see serious danger in this drastic drop in the fresh fruit market, however.

They emphasize it won't be many years before the Florida grower will need a vigorous fresh fruit market as an outlet for his oranges—no matter how many are used by concentrators, canners, and chilled juice operators.

Furthermore, these men say, the supply and demand situation would already be far different if there had been no freeze in the 1957-58 season. Effects of that freeze, they point out, were still being felt last season.

Crops of 125 million boxes of oranges—half as many more as were produced during the season just ended—are being predicted eventually in Florida.

When that time comes, the growers will need every available outlet to dispose of their crops at even a reasonably good price.



It's an eight-box tree...and heading higher because it gets magnesium every season

Citrus trees need magnesium for freeze resistance, big yields, and high fruit quality . . . Sul-Po-Mag supplies it

Soil tests show Florida citrus soils need magnesium . . . vital for vigorous growth and high citrus yields.

Magnesium is used up rapidly. That's why it must be added to your soil *every year* to protect your grove from magnesium deficiency. The average grove needs an annual application to assure adequate protection and improved growth.

If the supply of water-soluble magnesium is not maintained, trees lose resistance to freeze, leaving them susceptible to severe winter damage. Leaves turn yellow and drop prematurely . . . leaving stunted fruit exposed to the sun. Trees also lose yield. Fruit size and quality drop. But the big danger is that magnesium deficiency can hurt profits *for years* before any tell-tale yellowing of the leaves signals the cause of the trouble.

The best way to safeguard your crops against magnesium deficiency is with annual applications of mixed fertilizers with Sul-Po-Mag*, also known as SPM. Sul-Po-Mag is water-soluble and fast-acting . . . yet its granular form assures season-long release. And Sul-Po-Mag can be included in the fertilizer ratio you need. It is neutral in reaction . . . . does not change soil pH.

You can get Sul-Po-Mag in most brands of complete fertilizers. For more complete information about the role of Sul-Po-Mag in plant nutrition, write c/o the address below.

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Pre-Season Planning:

Potato Wireworm Control

THE SOUTHERN potato wireworm (*Conoderus falli Lane*) can be controlled.

So says Ralph B. Workman of the Potato Investigation Laboratory, Hastings. He reports:

Parathion at two pounds actual per acre disked into the upper five inches of soil at the Potato Investigations Laboratory has given excellent control of all wireworms present at the time of application.

First, the wireworms affected by parathion undergo a period of increased activity. Following this, the head becomes upturned; the proleg of the next to last abdominal segment is extended, and the wireworm is unable to remain upright or use its legs in movement.

Wireworms never recover from this condition. However, they may exhibit turning or twisting motions for one to two weeks before death finally occurs.

Laboratory tests were conducted by placing wireworms in small amounts of soil treated with various concentrations of 20 different insecticides. These showed:

Only three chemicals—parathion, diazinon and thimet—gave complete wireworm control at rates of two pounds actual and under per acre.

Each of these three insecticides were tested at one and two pounds actual per acre under field conditions. All three gave complete wireworm kill.

Final data will be furnished by the rating of potato tubers grown in the treated plots.

The addition of wireworms to soil samples taken from field plots have shown that parathion lasts from three to five weeks in the station soil. Thimet and diazinon are still giving effective control after seven weeks.

Underway also are tests which include the application of parathion, diazinon, and thimet as foliar sprays. A portion of the spray is directed onto the tops and sides of the rows as a possible alternate or additional control measure after the potatoes are growing.

Results of these tests will be judged by tuber examination at harvest.

Growers' Help Sought in Nematode Containment

EXERCISE all precautions in the handling of field equipment in all known or suspect decline-infested areas.

Such is the appeal issued to grove owners and caretakers by Dr. W. G. Cowperthwaite, state plant commissioner. He explained that evidence has been offered that spreading decline could be transported through the movement of soil adhering to mobile units.

Patterns of decline found in some areas roughly parallel the patterns generally followed in discing those groves, the commissioner pointed out. He added:

"It is highly possible that decline could have been moved from an area of infestation into apparently free areas through the movement of equipment.

"Scientific papers prepared by state and federal research men indicate that the burrowing nematode responsible for spreading decline can survive excessive heat and dryness. These two conditions generally are present in soil that might cling to tracks, wheels, and bodies of units used in cultivating and harvesting citrus acreage."

Recommended to growers and caretakers is a program similar to that followed by the Plant Board in its fight against decline. All equipment used in the push-and-treat operation is thoroughly cleaned before being moved out of an infested area.

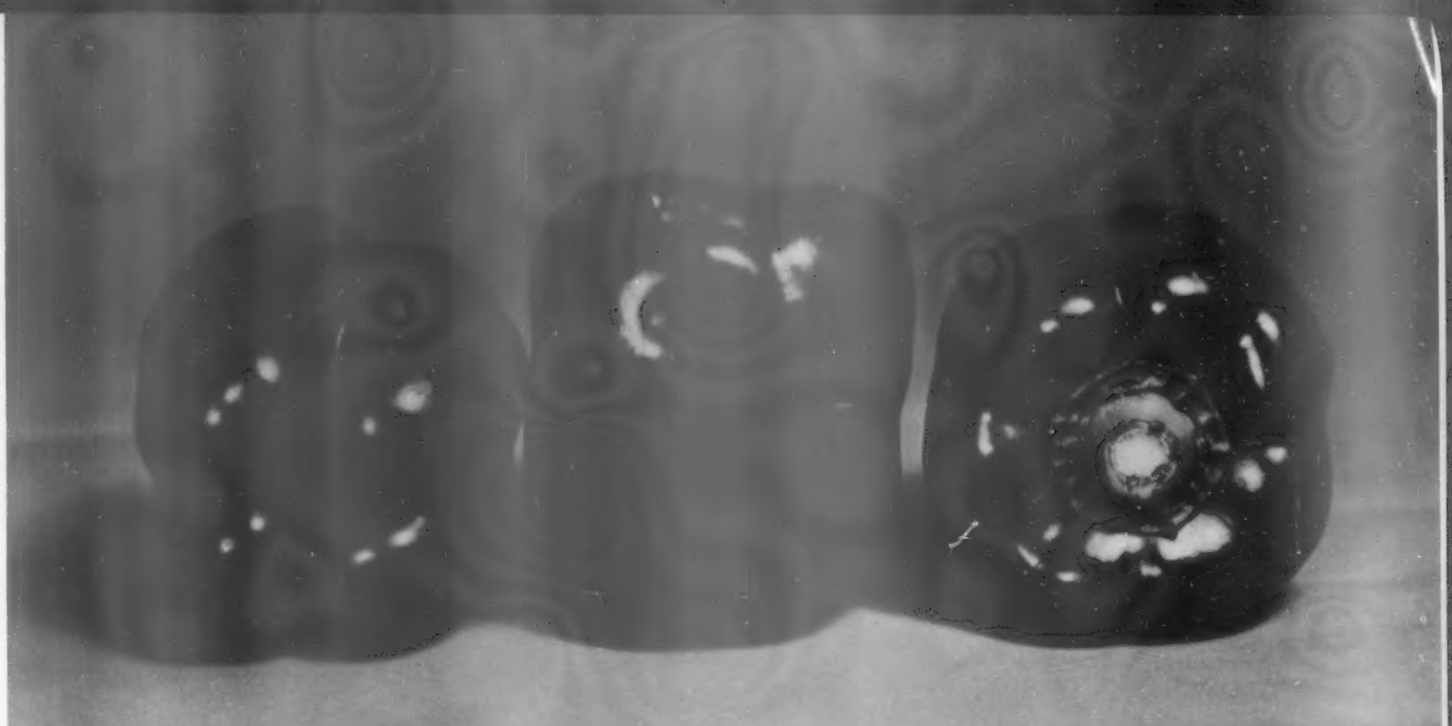
"The same sort of precautions by everyone involved in grove care," Dr. Cowperthwaite declared, "would go far toward containing the nematode responsible for decline."

* * *

Drying Peanuts

Helping to dry peanuts is another on-the-farm function of black polyethylene film. It serves as caps which keep rain from seeping down through stacks of peanuts in the field during the drying period.

Before caps were introduced, hay or corn shucks were used to blanket the stack. However this method was generally regarded as inefficient.



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Because it bears without let-up, for continuous harvest, this improved strain produces heavier yields of No. 1 fruit than regular Yolo Wonder. Upright plants provide denser foliage cover for pendently borne fruits, and are resistant to Tobacco Mosaic. Fruit is predominantly 4-lobed, thick-walled and blocky. Stock up now for the coming season.

1A

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This special strain selected by Ferry-Morse breeders is similar to F-M Utah 52-70 but has better holding ability and slightly deeper color Plants are 19″ to 22″ tall with good girth. Compact, cylindrical heads produce deeply cupped, very smooth stems 8½″ to 10½″ long to joint. Shows resistance to leaf yellowing and to brown check.

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HOMESTEAD F-M 61 TOMATO BEARS UP TO FOUR QUALITY PICKINGS

This special strain selected by Ferry-Morse breeders is more productive than regular Homestead. Compact, Fusarium Wilt resistant plants allow closer planting, produce heavy early fruit set, and, where adapted, continue to yield quality fruits through third and fourth pickings. Bright-red fruits are smooth, large and deep.

Control Weeds to Combat Vegetable Viruses in Florida

By DR. JOHN N. SIMONS
Assistant Virologist
Everglades Experiment Station

HISTORICALLY, the control of weeds in crop plantings has been one of the farmer's most chronic problems.

On the other hand, the realization that *weeds not actually growing in competition with cultivated plants can be a real menace* is a much more modern concept. This is particularly true in the case of plant virus diseases.

We have known about viruses for approximately 60 years. But not until recently did many plant pathologists begin to appreciate the role of infected weed hosts in causing outbreaks of certain virus diseases.

For at least 40 years, these scientists have generally agreed that weeds harbored viruses which could cause damage to many vegetable crops. And most of them were quick to agree that the elimination of weeds should have an effect on subsequent virus infection in a crop.

However, most felt this effect would be hardly worth the effort it took to control the weeds. After all, it appeared very logical that the insects which transmitted the viruses from the weeds to the crops should be able to fly for many miles after getting virus from the diseased weeds.

Thus these scientists reasoned: "What real value would it be to a farmer to spend time and money getting rid of weeds that looked healthy most of the time anyway?"

No wonder, then, that today many farmers fail to realize the importance of apparently innocent-looking ditch bank weed growth!

Looking back at the results of previous weed control efforts in Florida, it is hard not to be impressed by the striking success obtained in reducing losses from virus diseases in vegetables.

Florida's first area-wide weed control program was carried out in Sanford during the mid-1930's. At that time, cucumber mosaic virus was wrecking havoc on Sanford's celery crop.

Consequently, a thorough clean-up program was instituted against wandering jew, the principal weed host of cucumber mosaic virus. Within a relatively short time, Sanford's celery losses due to this disease were drastically reduced.

Virus losses from the same disease reached epidemic proportions in the Belle Glade area during the late 1940's. Similar clean-up results occurred there.

Every few years now, a few individual growers—as a regular practice—clean up their fields and ditch banks after the growing season is over. Almost without exception, these farmers are not bothered greatly by virus diseases.

The principal reason for the change in our attitude toward weed control work today is that we now have the basic information which enables us to evaluate the chances for success of a weed-host control program.

Most of the mystery of how viuses spread and where they come from is no longer mysterious. This is certainly the case insofar as the viruses causing mosaic diseases of vegetable crops in Florida are concerned.

We have discovered during the past 10 years that—with the exception of tobacco mosaic virus—all of the important mosaic-causing viruses in Florida vegetables are transmitted by aphids. These viruses include those that cause mosaics of celery, cucumber, pepper, squash, tomato and watermelon.

Furthermore, we have learned, all of these viruses persist from season to season in the same way—*INFECTED WEEDS.* They are *NOT* (1) seed-borne, (2) retained in the soil, (3) blown by the wind, nor (4) spread by contact.

A great deal of time has been spent in finding what insects transmit these viruses and how these insects do the job. It now seems:

Only aphids transmit these viruses. And by far the most important kind of aphid is one called the "green peach aphid."

The green peach aphid is able to reproduce on many kinds of broad-leaf weeds (no grasses), is very efficient at picking up virus when it feeds, and is inclined to do a lot of flying from plant to plant when it gets in the field. All of these traits make for a potent vector of a virus.

We know that only aphids spread these viruses. And we know that aphids are easily killed by any of several insecticides.

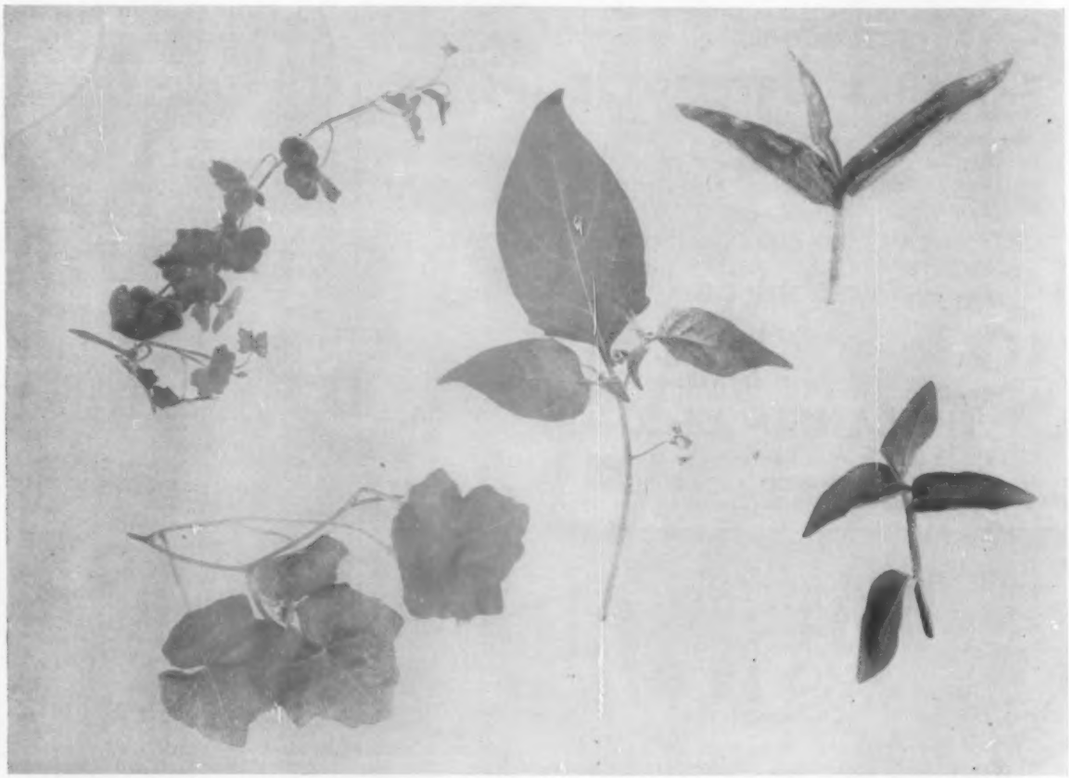
Consequently, it seems logical that one of the simplest ways to control the mosaics is to kill the aphids. Yet, as most farmers are only too well aware, this approach does not work.

Some growers, in fact, doubt that aphids spread the viruses. This is because they do such a good job of spraying that aphids are almost impossible to find in their fields . . . and still they have mosaic troubles.

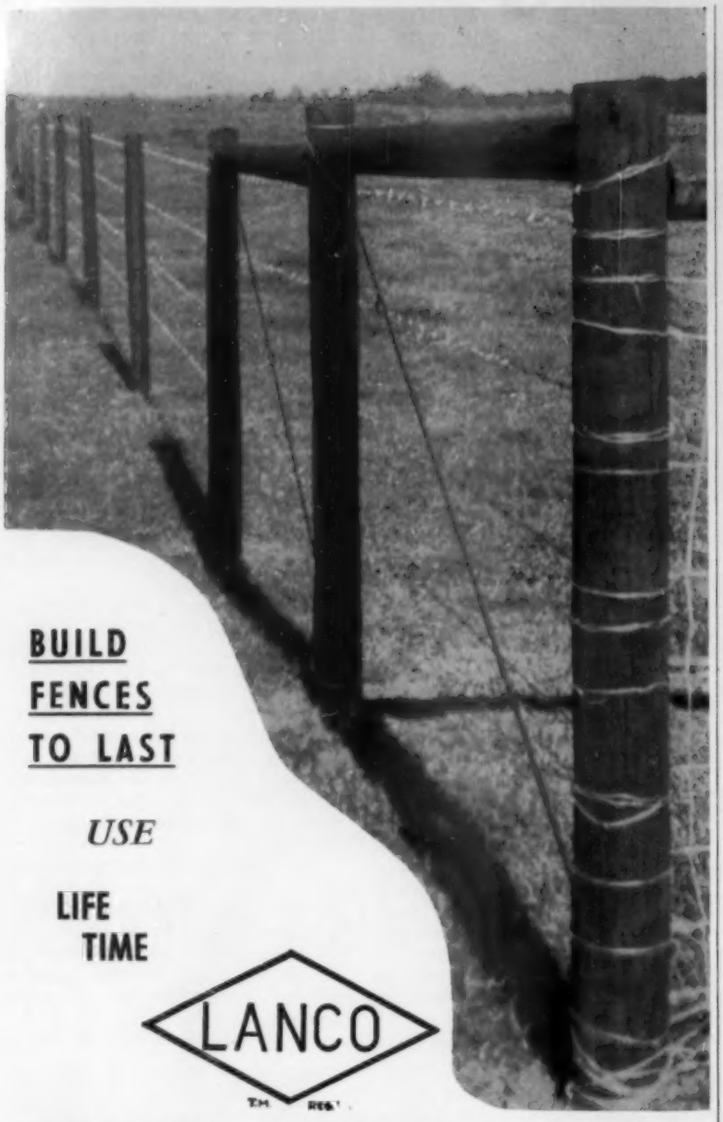
There is a perfectly good reason for this apparently contradictory situation: Although the insecticides do kill the aphids, they do not kill until *after* the aphid has transmitted the virus.

One of the most surprising facts about aphid transmission of these diseases is the small amount of time it takes for an aphid to either pick up virus from a diseased plant or to inject it into a healthy one—the aphid can do either job easily in less than a minute.

(Continued on Page 19)



COMMON WEED HOSTS OF VEGETABLE VIRUSES in Florida include the following: Upper left, watermelon mosaic virus in wild cucumber; lower left, healthy wild cucumber plant; center, nightshade plant; upper right, cucumber mosaic virus in wandering jew, and lower right, healthy wandering jew.



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Pre-Season Planning:

New Insecticide for Livestock Pests

RONNEL, an organic phosphorus chemical, has been added to the list of insecticides recommended by the USDA for the control of several livestock pests.

It is available in several forms. It may be used as a spray, a smear, and as a bolus (pill).

Chemical name of the active ingredient is 0,0-dimethyl 0-2,4,5-trichlorophenyl phosphorothioate. Korlan is the name applied to the technical grade of ronnel.

Used as a spray, ronnel may be applied to beef cattle for the control of horn flies, lice, ticks, and screwworms; to sheep and goats for control of lice, keds, screwworms, and fleeceworms. It is also effective against lice on swine.

Recommended spray strengths are 0.75% for beef cattle and 0.5% for hogs, sheep, and goats.

The material is particularly effective against screwworms. A single spray application destroys existing infestations and usually protects against re-infestations until wounds heal in seven to 14 days.

It can also be used against screwworms as a smear treatment for wounds.

Ronnel spray or smear cannot be used internally. In bolus form, however, this chemical (formerly known as ET-57) has been recommended as a systemic for cattle grubs.

Because it is known to leave residues in milk, ronnel is *not* recommended for dairy cows or milk goats either as a spray or bolus.

Users are warned not to apply the material to sick animals.

To avoid residues in meat, the following limitations should be observed: Do not apply to cattle within eight weeks of slaughter; to hogs, within six weeks; or to sheep and goats, within 12 weeks.

Do not apply smears within 21 days of slaughter.

Potential users of ronnel are cautioned to follow directions on the label to the letter.

"Every now and then the boss culls out the poor producers."

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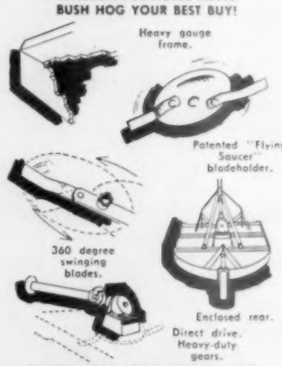

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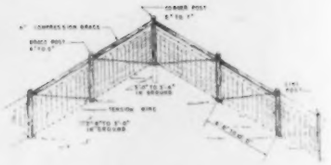

FIGURE 1
Corner Assembly

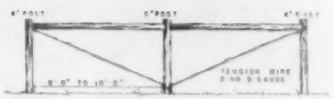

FIGURE 2
Pull Assembly

BUILD FENCES TO LAST

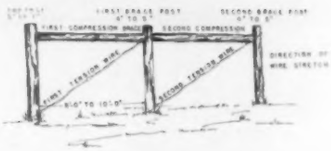

FIGURE 3
End Assembly

By T. C. SKINNER
Extension Agricultural Engineer
Florida Agricultural Extension Service

ON A RECENT tour of the state, I had an opportunity to observe hundreds of miles of fence—some new, some old.

What I saw convinced me that *not more than 15 or 20% of the fences in Florida are built according to approved fence construction practices.*

Consequently, a large majority of fences begin to fail after a very few years. This results in an increasingly larger yearly expenditure to maintain the fence.

Farm fencing represents a major capital investment to the average Florida farmer. Usually, just land, buildings, and equipment (and in some cases land only) represent larger investments.

A structure of such financial significance should merit good materials *and* the best possible construction techniques. Such a fence should have a serviceable life of 25 to 30 years and require a minimum of maintenance.

To try and determine why so many fences are poorly constructed, I talked to dozens of persons who have built fences. In almost every case, I found that the person building the fence did not understand the principles of good construction.

Each seemed to think that all that is necessary to build a good fence, is to get some good posts, wire and staples and start building!

You would not use this approach to build a house or a dairy barn. Yet good design is just as important to a good fence as to the aforementioned buildings.

Recognizing the need for better engineered fences, let's see what's involved:

First of all, start with good materials. This means a good quality woven wire or barbed wire, depending on the type of fence needed, and good posts of adequate size.

Wood fences should be pressure-treated. Untreated native posts seldom last more than four or five years.

Good materials, however, are only the beginning. Good workmanship is just as essential—and this is where most fence failures begin.

A fence is made up of the following components: (1) corner assembly, (2) end assembly, (3) pull assembly, and (4) line fence.

Just like links in a chain—if one part is weak, the whole fence is in danger.

In building a fence, follow the recommendations below; a strong, durable, nice-looking fence is sure to result. And it doesn't cost any more to build right than to build wrong.

Construct first the corner assembly (Figure 1). It is the "heart" of a good fence since greater loads and stresses are placed on the corner than on any other part of the fence.

Generally, a double span horizontal brace corner assembly is accepted as being best.

Attach the wire to the corner post and stretch it to the first pull assembly. The corner post should be 5″ to 7″ in diameter and set 3′-0″ to 3′-6″* in the ground.

Be sure to tamp the soil firmly around all posts. Then set the brace posts (two in each direction from corner). These should be 4″ to 5″ in diameter and set 2′-6″ to 3′-0″* in ground.

The brace posts should be spaced not less than 8′-0″. A spacing of 10′-0″ is better.

Comparison braces should be 4″ in diameter and attached to the posts by means of metal dowels rather than by nailing. They are positioned approximately 6″ from the top of the posts.

Diagonal tension wires are necessary. These should consist of two No. 9 gauge smooth wires attached as shown in Figure 1. Twist the

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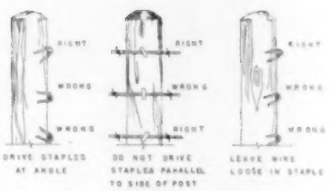


FIGURE 4

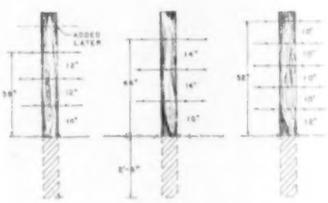
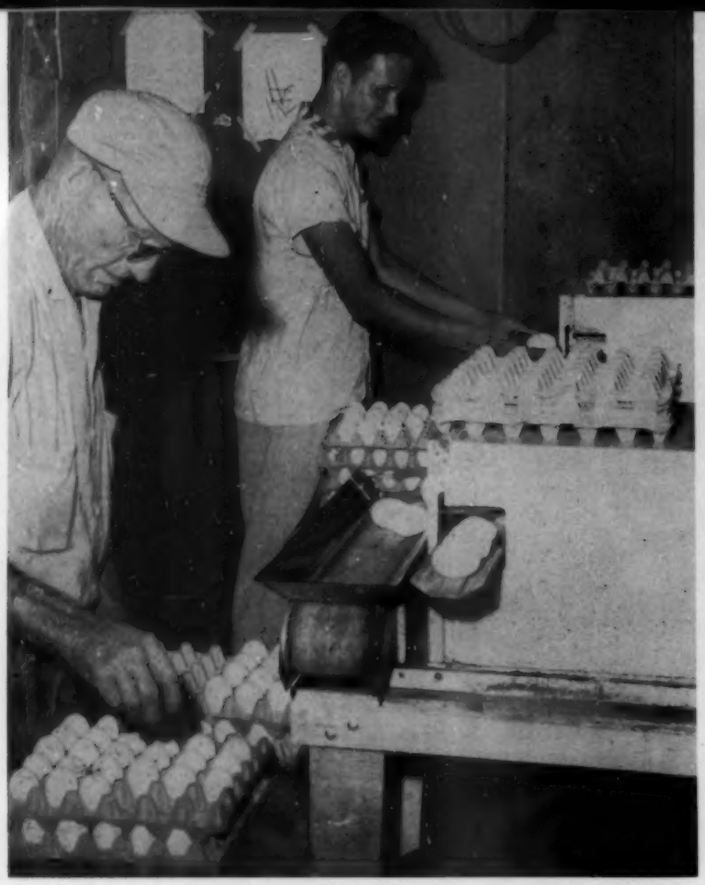


FIGURE 5

FOR FENCING over 32 inches wide a double jack fence stretcher (see photo at top of page) should be used. Attach it to center post of pull assemblies.

* Depth which posts are set in the ground depends on the soil type. They should be set deeper in loose, sandy soils than in heavier type soils.)



QUICK WORK! Charlie Partridge, farm hand, and Robert Shaw, son of owner, quickly clean (left photo) the day's egg production by the aid of a modern egg washer. Each machine will wash and dry 2,000 or more eggs per hour.

FOOT-CONTROLLED ELECTRIC CART enables S. J. Shaw (below) to gather the eggs from his 4,000 layers in 50 minutes. Previously, it took two men approximately twice that time to do the same job.

Mechanization Is Profitable

Now, more than ever before, labor-saving equipment is almost a vital necessity on the poultry farm.

When egg prices are good, many poultrymen are prone to overlook efficiency factors. At such times, they possibly can afford to do so.

Such, however, definitely is *not* the case at the present time.

Current egg prices are the lowest many poultrymen have ever known. Therefore factors contributing to efficient operation are of paramount importance.

Labor-saving equipment is one such factor. The use of such equipment can lower production costs considerably.

Even the shaving of a few cents off production cost may mean—especially today—the difference between a profit or loss. But the savings derived from the use of mechanical equipment may be much greater.

Visits to poultry farms around the state have revealed the two following—and highly illuminating—facts:

The more progressive poultrymen are those utilizing the most mechanical equipment.

With few exceptions, every farm visited could be improved by either the use of more equipment or by different arrangements of equipment already on hand.

A new tool catching on fast in poultry circles is a three-wheel electric utility cart. It is used for picking up eggs, transporting replacement birds from the growing house to laying house, and for numerous other chores.

S. J. Shaw, energetic Citrus Park poultryman, says that the electric cart is the last tool on his farm that he would part with. He claims that it takes the place of a hired hand.

Nowadays, a hired man's salary will run about $40 weekly. Furthermore, $40 in the pocket of many a poultryman today is equivalent to the $60 or $80 of a few months ago.

Use of such labor-saving equipment as the electric cart, Shaw points out, could enable many poultrymen to pocket much of the $40 that formerly went to the hired hand.

Two front, antler-like feeler arms guide the cart, allowing the operator to use both hands to pick up eggs. Shaw altered his steering apparatus so that one feeler arm will guide the cart.

John Cressler of Seffner also is an advocate of the electric cart. And he, too, adapted it to meet his needs:

Cressler mounted the bed on sponge rubber balls and put on a second floor, making the cart a double decker. The second floor has semi-pointed ends which enable it to open swinging doors without the operator moving from his seat.

Some operators save considerable labor by having their feed delivered in bulk. They store the feed in metal bins near the poultry houses.

Feed costs less when purchased in bulk lots. Moreover, less labor is needed to get the feed to the layers.

By using bulk feed in automatic feeders, one feed man estimates, the labor cost can be reduced by $5 per ton.

One egg producer claims that his automatic feeder wastes less feed than did the conventional hand method. This, of course, effects a considerable savings.

His automatic feeder, according to another poultryman, increased production 5%. Within a period of three years, he adds, the 5% increase was sufficient to pay for the machine.

Mechanical egg washers and graders are a "must" when poultrymen perform these functions on the farm. These machines eliminate several hours of laborious work daily.

The simplest mechanical washer will do the work of many persons . . . and usually will do a better job.

Key flats for handling eggs are being used by Shaw and many other progressive operators. The flats save time and minimize breakage considerably.

For transporting eggs around the egg room, Shaw has devised several unique benches which eliminate having to stoop over for the eggs. Mounted on castors, the benches are 12 inches wide, six feet long, and 30 feet high.

After eggs have been packed on the Shaw farm, the cases are placed on castored dollies. Each dolly is two feet square and will hold up to eight cases of eggs.

Once loaded, the dollies are

(Continued on Page 25)

Successful poultry operations prove labor-saving equipment shaves production costs

PUNCTURE THE RUMEN at the triangle (left photo) behind the last rib on the left side. Right: Using the stomach tube.

"... a fully bloated cow may have but a few minutes to live."

What To Do About Bloat

By DR. JAMES M. WING
Assistant Dairy Husbandman
Agricultural Experiment Stations

FOR OVER 2,000 YEARS, bloat has been one of the cow manager's unsolved problems.

Bloat may affect cattle of all ages, even young calves. The sides of bloating animals swell. Distension is first noticeable on the left side since the largest stomach compartment, the rumen, is located there.

Swelling is caused by gas. But over-production of gas doesn't cause the trouble; it's the inability of the cow to relieve herself.

Gas production is the normal function of the rumen. The average well-fed cow produces over 600 liters of rumen gas daily. Even this large volume is easily dissipated by the cow's eruction process—unless something interferes. Then the animal bloats.

Acute bloat often is fatal. Just how it kills is a mystery.

The pressure exerted by the gases doesn't seem to do it. And there's little, if any, difference in the kind of gas produced in normal and bloating cattle. Usually, the volume of gas produced is about the same—whether or not bloating occurs.

We don't know why, but make no mistake about it:

Bloat is a killer! Perhaps too much gas is absorbed into the blood of bloated animals, where it causes vital organs to become paralyzed.

A combination of feeds and conditions appear to have caused much of the bloating which has occurred in recent years.

Many herds, in which bloat had never before been a problem, have been almost wiped out. In one beef herd recently, over 30 head died from bloat before treatment could be administered.

Last year, one dairy herd manager found over 60 cows bloating one morning. These were discovered promptly and the herd manager, his crew, and the local veterinarian saved all but 16. They were lucky.

There is a great deal of individual variation in the tendency of cattle to bloat. Some are chronic bloaters. These should be marketed, unless they are especially valuable for breeding purposes.

Generally speaking, there are two main classifications of bloat:

"Feed-lot bloat" occurs sometimes in beef cattle which are being fitted for market or in dairy cattle in urban areas where rations are high in concentrate feeds and relatively low in leafy roughage.

It seems that sometimes the feeds are just not compatible with certain groups of cattle. Changing the hay, or one or more constituents of the concentrate mixture, sometimes eliminates the danger of feed-lot bloat.

Usually, but not always, this type of bloat is less acute than bloat which occurs on rations high in leafy roughages.

"Frothy bloat" occurs most often among cattle on pasture—especially if the pasture contains clover or other legumes. It may occur also when cattle are eating green chop or silage.

Often this type of feed contains substances which cause a heavy froth to form at the top of the stomach contents. This foam may cover the opening of the esophagus, and gases may be trapped—and accumulate—within the foam.

Thus, sometimes bloat occurs just because froth makes it impossible for the cow to belch! This type of bloat can be controlled by using anti-foaming agents.

Non-toxic oil of almost any kind can be used to break foam or to keep it from forming.

In New Zealand, frothy bloat was eliminated when pastures were sprayed with peanut oil (3 ounces per head daily). Oil used in this way must be applied the same day the forage is eaten.

Rain, of course, eliminates the oil. Therefore strip grazing is almost essential with pasture spraying for bloat control. Portable electric fences are used to expose just the treated areas to the grazing animals.

Crude soybean oil was used at the Iowa Station. Although this oil is toxic to very young calves, it is in no way harmful to animals which are large enough to graze.

When application is made directly onto green-chopped forage, a quarter pound of soybean oil per head for each 75-100 pounds of feed daily seems to be enough.

Just sprinkle the oil onto the forage before unloading or feeding from the wagons. An ordinary sprinkler can is satisfactory for this purpose.

Lard oil, commercial yellow grease, bleached tallow, and various vegetable oils (including the popular cooking and salad oils) will do the same job.

The above shows it is easy to control frothy bloat in animals fed green chop, silage or hay from bunkers or self-feeding wagons.

If cattle are pastured in large areas, it seems probable that frothy bloat can be prevented by use of a roughage mixture containing citrus pulp or various other bulky feeds to which a liberal amount of oil is added.

For best results, this mixture should be fed (in the same kind of feed bunks used for green chop or silage) right on the pasture.

At least a pound of oil per head daily is necessary, if frothy bloat is to be prevented, when oil is added to the regular barn concentrates. If pasture-fed pulp mixtures are used, the oil content probably can be reduced considerably.

Water dispersible oils can be added to drinking water. But this would not seem practical, since there is no way to estimate accurately when and how much water bloat-prone individuals will drink.

Various substances other than oils also can serve as anti-foaming agents.

However these materials—waxes, detergents, synthetic surface active agents, silicones, and alcohols—usually are more expensive, harder to get, and less palatable than oils.

Edible oils are available almost universally. Probably there are natural feed stuffs which contain foam depressants.

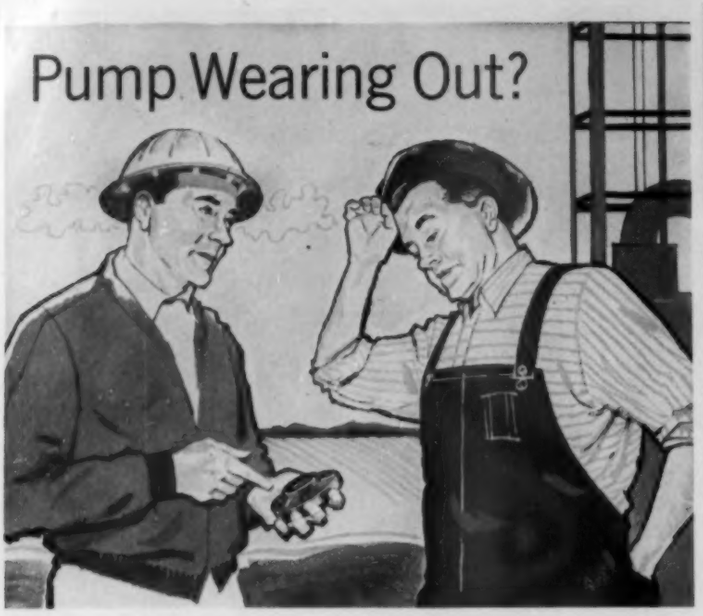
Linseed meal, for instance, contains mucin. Use of this feedstuff appears to reduce the incidence of pasture bloating.

Perhaps some types of feedlot bloat can be controlled in part by use of linseed meal or other feeds which help control frothing.

Research into the effect of various concentrate feeds on the incidence of bloat has not been extensive. Thus each feeder may have to try various combinations.

Breaking plant cells (allowing the cell contents to enter rumen solutions as forage is consumed) may help prevent frothy bloat caused by some forages. The plant cells are ruptured to some extent

(Continued on Page 26)



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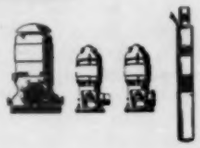

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Agricultural OUTLOOK

Hogs Expanding production continues to dominate the hog outlook. The past spring's increased pig crop indicates hog prices will continue well below a year earlier through next winter.

The hog-corn ratio next winter will be rather low, and profit margins narrow. Indications so far point to a further increase in next fall's crop.

Milk Farm production and prices continue near last year's level. Prices of dairy products at whole also are close to a year earlier.

Eggs Wholesale prices dipped in May and early June to lowest levels since 1941. A larger, more productive national flock continues to produce at higher rate than last year . . . probably will continue to do so through 1959.

As a result of the price decline, hatchings of flock replacement chicks are likely to fall under last year during remainder of season. But the cut is coming too late to have much effect on egg production this year.

Broilers Weekly egg settings for broiler chicks have been below a year earlier since mid-April.

Birds from these settings will reach market in late July, when demand will be seasonally strong. Consequently, prices are likely to rise.

Potatoes Prices improved considerably during May, and probably will rise further in the next few weeks.

The spring crop was down 13% from last year. But storage supplies from last fall's crop are continuing to move in large volume.

Tobacco Cigarette and cigar output continued to climb in the first quarter of this year. The former rose 5.5% over a year earlier; the later, 9%.

(EDITOR'S NOTE: The above was adapted from recent USDA Agricultural Situation bulletins.)

How smart are you?

(Answers to Questions on Page 2)

1. *New York City.*
2. *Because all activities of the body (including heat production) are lessened so that shock, such as cold, may cause death.*
3. *Saturn.*
4. *Benjamin Franklin.*
5. *Pennyweight.*
6. *It was originally made in Germany and France.*
7. *Purple, green, and orange.*
8. *Tennis.*
9. *The dog ("dog days").*
10. *Oakland Bay Bridge in San Francisco.*

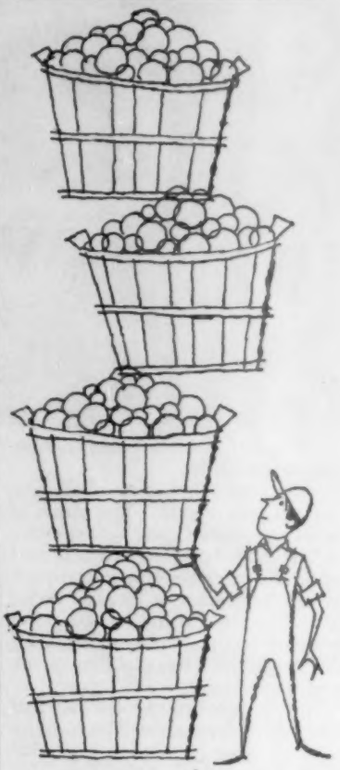
* * *

No Cane Restrictions

Restrictions will not be imposed on marketings of sugarcane from the 1960 crop in the Mainland Cane Sugar Area (Florida and Louisiana), according to the USDA.

* * *

Inflation is just like the weather: Everybody talks about it but nobody does anything about it.



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IN THE BEGINNING, a preliminary inspection is made of every tree submitted for registration. Acceptance of candidate trees is based on trueness to type, budwood variation, vigor, productiveness, and overall quality. Each candidate and its progeny will be observed up to eight years before it is finally registered as being free from Psorosis, Xyloporosis, and Exocortis. Here a tree, in a wooded area several miles from other citrus plantings, is checked by State Plant Board Inspector R. R. Nixon Jr.

SAMPLES OF BUDWOOD are gathered by Nixon for rigorous State Plant Board tests for virus diseases. Testing starts only after the candidate tree has passed its preliminary inspection and the first flush of spring growth has been screened for Psorosis.

BUDDING THE WOOD onto another rootstock (Key Lime, in this case) is the next step in the registration progress. Harry Burnett, pathologist, is shown testing budwood for tristeza. Because this virus can be spread by insects, testing is done under screen in a quarantined house. The tristeza test can be completed within six months to one year.

Rigid tests precede the registration of

VIRUS FREE Citrus Trees

By THOMAS J. HUGHES

"REGISTERED OR CERTIFIED NURSERY STOCK," "virus-free budwood," and "disease-free citrus trees" are common topics of conversation in virtually every citrus meeting these days. Many who have heard these terms are not exactly sure of what they mean. Still fewer know how a registered virus-free tree attains that status.

Extensive testing, ranging from six months to eight years (depending upon the type of virus in question), precedes the registration of a tree as being "virus-free." All tests are conducted under the rigid control of the State Plant Board, Winter Haven.

Virus-free stock has many benefits over the run-of-the-mill tree. Gerald G. Norman of the Plant Board, says it is generally believed that registered budwood permits the use of a wide range of rootstocks, gives added cold resistance, has better drought resistance, and increases the life of the tree. Moreover it increases the grower's yield considerably, thereby lowering his per-box and overhead costs.

The Citrus Budwood Registration* Program was launched in 1953. Its active participants now number some 170 nurseries with a total of 2,745 registered scion trees. Each of these registered trees has undergone the process described in pictures and captions on this page.

*The original word "certification" in the program name was changed to "registration" on January 16, 1959.

OFFICIAL TESTING PLOT near Winter Haven is used to detect bud transmitted viruses only. In this photo, candidate budwood is put on sweet seedling rootstock to undergo a two-year test for the detection of Psorosis. For the four-year test for Xyloporosis, Orlando Tangelo rootstock is used. Trifoliata rootstock is used for the Exocortis test which requires eight years. Since the budwood program is only six years old, no trees as yet have been registered for Exocortis.

SUCCESSFUL CANDIDATE: Albert Lounds, Dundee nurseryman and citrus grower is shown taking budwood from tree found to be free of tristeza and Psorosis. Budwood from registered parents is carefully labeled and its identity maintained until the tree is planted.

BUDWOOD FOR PROPAGATION of registered nursery stock is prepared by Lounds. (Rootstock ready for budding is in the background.) Registered nursery stock destined for planting in registered scion groves must be dug, planted, and mapped under the supervision of a State Plant Board inspector.

AUTOMATIC PILOT for use with hydraulic power steering on farm tractors is demonstrated here by its designer, Louis A. Liljedahl, USDA engineer.

Automatic Pilot for Tractors

PRECISION cultivation of row crops may soon be possible.

An automatic pilot for farm tratctors is expected to increase the effectiveness of cultivation as a means of weed control. It was designed and laboratory-tested by Louis A. Liljedahl, USDA engineer stationed at the University of Minnesota, St. Paul.

Designed for use in conjunction with hydraulic power steering hookups which are featured on many modern tractors, the steering control system enables operators to guide tractors more accurately—thereby making possible finer adjustments of cultivation machinery for control of weeds without damage to the crops.

Lightweight feelers, capable of sensing the position of the crop row in relation to the tractor's front tires, are used in the automatic pilot to close switches when the tractor moves too close to or too far from the row.

In turn, the microswitches open valves that permit hydraulic pressure to turn the front wheels into alignment with the row. A linkage system between the front wheels and the switches automatically straightens the front wheels as soon as the tractor returns to the correct position.

Finding a way to use fairly simple equipment low enough in cost to be a profitable investment for farmers seeking to do a better job of cultivation was the main problem overcome in developing this device.

The model is currently being field-tested.

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Pre-Season Planning:

Tips on Rope Selection

SELECTION, use, and care of three kinds of rope commonly used by farmers are detailed in a new USDA bulletin.

The three general types of rope available for farm use, according to the bulletin, are (1) natural fiber ropes, made from either manila or sisal fibers; (2) synthetic fiber ropes, made from nylon, dacron, orlon, saran, glass, or polyethylene, and (3) wire ropes.

Manila fibers make the strongest natural fiber ropes. Sisal ropes are less flexible than manila and only 75 to 85% as strong; but they are more resistant to abrasion.

Dacron and nylon ropes are stronger than manila. They are especially useful under wet conditions because the fibers do not absorb water and are not damaged by rot or mildew.

Nylon rope can be damaged by acids, paints, and linseed oil; it resists damage by petroleum oils, solvents, and alkalies. Dacron is resistant to acids, heat, and insect damage.

Saran rope is also resistant to high temperature. Polyethylene rope, being lighter than water, has an advantage in that it floats.

Wire rope, made from steel wires wound on a fiber core or a smaller wire-rope core, is the strongest. The type of core as well as the size of the individual wire fibers used determines strength and flexibility.

It is important to use the proper size wire rope for a particular job. The bulletin provides a table of safe working strengths for strands of various diameters.

Rope made from large strands resist abrasion better. However it is less flexible than rope made from small wires.

Although rope made with wire cores resist crushing, resistance to crushing is not usually as important in farm jobs as flexibility and abrasion resistance. This becomes important when wire rope is wound on small drums under heavy loads.

The bulletin is illustrated to help farmers master splicing and a variety of knots and hitches used in farm operations. Illustrated directions on how to "whip" the end of a rope to prevent raveling are given, along with information on how to take proper care of rope to insure long, useful service.

Single free copies of "Rope on the Farm," Farmer's Bulletin No. 2130, may be obtained from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

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Saves More Baby Pigs

When sows are fed thyroprotein to boost milk flow the first week after farrowing, litter losses are less and the pigs weigh more.

Such were the findings of lactation ration studies at the Iowa Experiment Station. The thyroprotein was fed in the form of iodinated casein at the rate of 100 milligrams per pound of ration.

Pigs from the thyroprotein-fed sows weighed 0.4 pound more when one week old. Moreover, mortality losses dropped from an average of 0.5 to 0.2 pig per litter.

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Vegetable Viruses *(Continued from Page 11)*

Is it any wonder then that insecticides fail to give control of these diseases?

Another surprising fact about how aphids transmit these viruses is their loss of the ability to infect within a few minutes after picking up the virus. Almost as soon as the aphid has acquired virus from a diseased plant, the virus begins to "die."

Within five minutes after getting virus, the chances of an aphid causing an infection has dropped by 50%. Within 10 minutes, the chances have dropped by 75%.

The longest the aphid can retain the virus is about one hour. And almost no aphids retain it for this length of time.

Knowledge of this peculiarity is what suggested that aphids do not carry virus very far before losing it. And looking one step further ahead, it is apparent that:

Any means that makes a virus-laden aphid fly for a long time before it gets to a susceptible crop plant should be an effective control method.

We know that virus infection originally comes solely from infected weeds. Therefore it is only too obvious that getting rid of the diseased weeds for a short distance around the field should be very helpful.

Now, immediately, the question arises:

How far must this eradication campaign extend beyond the field to be worthwhile?

Unfortunately, there is no simple answer to this question. Every day the crop is in the ground, there is more of a chance for a virus-laden aphid to arrive from a greater distance.

For a short term crop such as squash, sufficient protection can generally be had by cleaning up ditchbanks in the fields and weedy areas on the edge of the field. Of course, the cultivated parts of the field have to be cleared of both diseased weeds and volunteer plants.

In the case of crops such as pepper and tomato, the weed eradication program should go out as far as possible—certainly for at least one-fourth of a mile.

This means that neighboring farmers must cooperate in their weed control efforts. This is truly a case patterned after the old cliché about "one bad apple in a barrel."

Before this story is complete, two other questions—what weeds are involved and when should weeds be eradicated—must be answered.

Fortunately, most weeds are not hosts of these viruses. And in no case is a grass involved.

The three most important kinds of weeds are (1) *nightshade and ground cherry* (peppers and tomatoes), (2) *wandering jew* (celery, cucumbers, squash and peppers), and (3) *wild cucumber* (cucumbers, squash and watermelon).

Eradication of the weeds must be accomplished *before the crop is planted.* Once the virus is in the crop, no amount of weed eradication will help.

Nothing is available in the way of a control practice once the virus has entered the field. Therefore I can only re-emphasize the importance of the timing.

Weeds that come up during the course of growing the crop will not affect the virus picture except that they could become infected and remain alive during the summer—thus harboring the virus for another year.

Maneb Content Upped

An increase from 70% to 80% in the active ingredient (maneb) of Dithane M-22, its manganese carbamate fungicide for potatoes, tomatoes and other crops, has been announced by Rohm & Haas Company.

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"Best crop on my place . . . heavy yield of fancy fruit . . . pods large and thick walled and the best color I ever saw."
Burton Gayler, Lake Worth, Fla.

"Grossed 1,650 dollars from one acre. Best pepper we ever had. Stands dry weather better and holds its green color longer than similar varieties."
R. T. Honrine and W. T. Hawley, Clinton, N. C.

"Have never seen such fine stalks, heavy foliage and thick walled fruit. Can recommend this variety as the finest I have ever had."
A. R. Dulaney, Crystal Springs, Miss.

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Robert McIntosh, Dover, Fla.

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Spend Time to Save Money

By LORA A. KISER

Furniture refinishing, while a protracted job, is a great budget booster

REFINISHING FURNITURE is a labor of love and/or economy. It takes time and patience; it also saves a lot of money.

Furniture refinishing is a protracted job. So try your hand on it this summer when you're free from the interruptions of school, club, and civic activities.

However, before you dedicate yourself to re-working that old spool table of Great-Aunt Mary's or the unfinished desk you've just picked up for Johnny, ask yourself these questions:

"Is the piece worth refinishing?" (If it's an antique, the answer is definitely "yes.") "Is it well constructed, with pleasing lines and proportions, and made of good wood?" "Am I willing to give the time and effort necessary to achieve good results?"

Steam ahead, dear reader, *only* if you've filed a "yes" answer to all these questions!

Before starting to refinish, collect everything needed for the job ahead. Also make all the necessary repairs (trust the repair of valuable antiques to good cabinet makers only) and remove all drawers, handles, and mirrors.

You may wish to remove the old finish before deciding on the new. In this case, don't buy the finishing material until later.

Finish woods of beautiful grain—like mahogany, walnut, pine, and maple—to show the grain. On cheaper woods of no particular beauty, use paint, enamel, or lacquer.

Allow ample time to complete each step. And follow directions until the job is finished.

Varnish and paint removers are hard on hands and wood, so use them with care. Wear old clothes and shoes and rubber gloves. Don't inhale fumes. Keep vinegar nearby to neutralize remover should any get on your skin.

Needed tools and supplies include: (1) paint and varnish remover; (2) sandpaper No. 2/0, 3/0, 4/0; (3) steel wool No. 3/0, 4/0; (4) clean rags; (5) newspapers; (6) putty knife; (7) brushes, and (8) empty cans or jars.

Finishing materials needed include: (1) filler, (2) paint, (3) varnish, (4) enamel, (5) penetrating seal, (6) stain, (7) linseed oil, (8) turpentine, (9) mineral spirits, (10) kerosene, (11) denatured alcohol, and (12) vinegar.

Preparing the surface: Use sandpaper (a quarter of a sheet wrapped around a 2x2x6" block of wood) and steel wool to smooth wood before finishing. Always work with the grain of the wood.

Sandpapering: Sand first with a No. 2/0 sandpaper; if the wood is fine-grained, begin with 3/0. Use steel wool to work around corners and irregular parts. (Always hold steel wool with cloth.)

Continue sanding with successively finer sandpaper until the surface is very, very smooth. Go over the entire surface with 3/0 or 4/0 steel wool.

Wipe away the dust with a clean, soft cloth. Sponge with a soft cloth wet with mineral spirits, turpentine, or denatured alcohol.

Fillers are often used to prepare the surface. Coarse-grained woods require a paste filler; fine-grained woods, a liquid filler. Follow instructions on the container.

When thinned with denatured alcohol, shellac makes a good filler. You may use 1 part shellac to 1, 2, or 3 parts alcohol.

Sealers protect stains and fillers from succeeding operations. One part shellac mixed with 5 parts denatured alcohol is a good base for many finishes. Before applying additional coats of finish, sand or steel-wool the treated wood.

If sanding and scraping will not do the job, use *commercial removers* on fine cabinet woods. Follow the manufacturer's directions.

Generously apply remover to one section at a time. Let stand five to 20 minutes, or until the finish begins to wrinkle.

Holding putty knife at about a 45-degree angle, remove finish with long, even strokes. Wipe away the loosened finish with a clean cloth or paper.

As each section is cleaned, wash it with a cloth dipped in turpentine or other neutralizer (see directions on container). Let dry overnight before applying finish.

Finishing the wood: Many cabinet woods—such as old mahogany, walnut, maple, cherry, and pine—may be finished with the *antique oil rub.* Although three weeks to several months are necessary for this finish, the furniture may be used during the process.

Prepare the wood by cleaning, sanding, and —if necessary—staining. Using a brush or cloth, apply a mixture of equal parts boiled linseed oil, vinegar, and turpentine. (Buy the boiled linseed oil; don't attempt to boil it yourself!)

Let stand until dull spots appear on the surface. Rub off excess oil; clean all crevices carefully. Using a soft, woolen cloth, rub—with the grain of the wood—until a lustrous finish results. (Don't let oil and turpentine mixture stand on wood too long before polishing.)

Repeat process at two-day intervals until the dull spots disappear and a uniform, clear luster results. Five applications are usually required for a satisfactory finish. The final finish may be paste wax, well rubbed in.

Once or twice a year, repeat the oiling process. But first remove the old wax with turpentine.

Stain brings out the beauty of wood or is used to match pieces of furniture. It can be used on new, unfinished or on old, used wood. Oil stains are preferred to varnish stains.

Mix light stains, in amounts as needed, using these proportions: 1 tablespoon burnt umber and 1 tablespoon burnt sienna (both are color-ground-in-oil) with 1 pint turpentine.

Dissolve pigment (color-in-oil) in small amount of turpentine. Add more turpentine to have enough color for entire surface. (Try on an inconspicuous place to determine color.)

Apply with cloth; rub off excess. If color is not dark enough, repeat. Let dry 24 to 48 hours before applying finish (oil, wax, varnish), shellac, or penetrating seal.

Wax may be applied directly to cleaned, sanded wood or over stain, shellac, varnish, or penetrating seal. Use a good quality paste wax to give a soft sheen and make the surface water-proof.

Fold a piece of cheese cloth (or other soft, lintless cloth) to make a thick pad. Using this pad or the bare hands, apply a thin film of wax. Work the wax into wood with a circular motion. Let stand 30 to 45 minutes.

Polish with a woolen cloth. Two applications of wax are usually enough.

Shellac may be applied to bare wood or over stain. Thin (using 1 part shellac, to 1, 2, or 3 parts denatured alcohol) to an easy-flowing consistency. Apply with brush; let dry.

Apply two or three coats of shellac, smoothing well between coats. Finish with two coats of paste wax, well polished.

Wood may be finished also with *varnish.* If filler and/or stain have been used in the wood, let it dry thoroughly.

First apply one or two coats of shellac, smoothing each with 3/0 sandpaper or steel wool. Wipe surface with turpentine or mineral spirits. Then, following the procedure below, apply a thin coat of varnish:

Pour small amount of varnish into a clean can; thin as directed by manufacturer. Dip a clean varnish brush into mixture and press the bristles lightly against side of can. Dip brush halfway into varnish again and apply to wood.

Brush—with long, even strokes—across the grain quickly, then lightly with the grain. Avoid lapping and piling up.

Let first coat dry thoroughly; then sand or steel-wool lightly. Apply second coat of thinned varnish. Three or four thin coats may be necessary to give the desired finish; when properly dried and rubbed between applications, they will give a better finish than one or two thick coats.

Finish by hand rubbing or with wax. Note: A soft, lint-free cloth may be made into a swab for use (instead of a brush) in applying varnish.

Paint and enamel for new wood: Sand wood well; apply one coat of thin (1 part shellac to 3 parts denatured alcohol) shellac. Sand again.

Apply a thin coat of flat paint; let dry. Follow with two coats of flat paint as it comes from the can. Finish with one or two coats of enamel. (If using a "one-coat" enamel, follow manufacturer's directions.)

Brush *paint* on with a free and easy motion. Brush first with the grain, then across the grain, and back with the grain again.

Use a full brush of *enamel;* flow on with long, even strokes. Go first with the grain; then across it; and back with the grain.

Once *lacquer* is applied, do not go over the surface again. Use a full brush; flow on lightly and evenly with the grain only. Use one coat of lacquer for refinishing; two coats on new wood.

It is not always necessary to remove the original finish when refinishing with paint, enamel, or lacquer. First make this test:

Wash with soap and water; let dry thoroughly; sponge with turpentine. If the original finish is still glossy, just roughen it sufficiently—with sandpaper, steel wool, or the Sal Soda solution—for the new finish to take hold.

Hand rubbing: A soft, smooth, dull finish is a mark of fine furniture. When using shellac, varnish, enamel, or lacquer, the final coat may be rubbed to give furniture this finish.

For rubbing, fold a felt or woolen cloth into

YARD & GARDEN

By Marguerite Schwaen

Perhaps it might have been easier to pick a national flower if we had gotten around to the selection earlier.

For instance, it seems that the rose is the most popular flower in America. But its fragrance and beauty long ago made it the choice of five other countries, including England.

Similarly, other flowers favored by large segments of the American public are already the floral standards of other countries. Included in this group are the iris (fleur-de-lis) of France and the tulip of Holland.

Other international floral symbols include: Germany, the cornflower; Italy, lily; Spain, pomegranate; Scotland, thistle; Ireland, shamrock; Wales, leek; Japan, chrysanthemum; Australia, wattle (acacia); Greece, violet; Belgium, poppy; Switzerland, edelweiss, and Mexico, the prickly pear cactus.

Adoption of the marigold as America's floral symbol is being sponsored by David Burpee, head of the huge seed concern. As a matter of fact, he has registered as a lobbyist in Washington on behalf of his favorite flower.

Telling points can be made about the marigold's lack of grace and rather sharp odor. But these traits are being overcome by hybridization and new varieties.

Cortez discovered this gay, hearty purveyor of sunshine in North America and took the seeds back to Europe. There the flowers were often used at the altar of the Virgin Mary. Hence the name "Mary's Gold," later shortened to "marigold."

Several good arguments have been advanced toward the adoption of the marigold as America's floral symbol: It's a flower that home owners in all 50 states of the union can grow. And it's a plant of the people, cheerful and strong.

A new place for the marigold is being found in dried winter bouquets and stylistic arrangements. Here's how these are created:

Cut the marigold in full bloom and hang, upside down, on a line to dry. Using soft string, tie the flowers in small bunches. Allow ample space for air circulation between the bunches.

THE MARIGOLD, Plant of the People.

Living in Florida

By BARBARA CLENDINEN

A pretty party lunch that's easy enough for the hottest July day is this soup and sandwich menu. Cheesecoated and beribboned, the sandwich loaf can be prepared days in advance and stored in the freezer.

Cups of briskly-flavored, herb-touched consomme make a perfect taste and texture contrast. To really complement that satiny-smooth, frostily-cool loaf, serve the consomme piping hot.

Dessert is equally easily: Chill melon balls with a melange of peach, pineapple, and mango crescents. Serve with crisp sugar cookies.

Make the sandwich loaf this way:

Trim crusts from 1 loaf unsliced, white bread. Slice bread lengthwise into 4 layers and spread each with softened butter.

Spread bottom layer with pimiento-nut filling. Top with second layer spread with egg filling; arrange a row of stuffed olives down the center of this. Place third layer on top and spread with ham filling. Top with remaining bread layer, buttered-side down.

Wrap loaf firmly in foil or waxed paper. Chill well. Unwrap and frost with cream cheese moistened with milk or mayonnaise. Chill until serving time. Garnish loaf with canned mushroom slices, crisp greens, and cucumber wheels.

Pimiento-Nut Filling: Blend ⅓ cup chopped nuts and 2 diced pimientos with one 3-ounce package of softened cream cheese. Add 2 tablespoons mayonnaise plus salt and pepper to taste.

Curried Egg Filling: Combine 4 chopped, hardcooked eggs with 2 tablespoons sour cream and mayonnaise to moisten. Season with ½ teaspoon each of salt and curry powder plus a dash of pepper.

Deviled Ham Filling: Blend 1 large can (4½ ounces) deviled ham with a little mayonnaise. Season with mustard and pepper.

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a thick pad and wrap around a block of wood. Dip rubbing block into oil (linseed, light motor oil, or oil made for the purpose) and sprinkle with pumace stone. Keep the cloth well-oiled; add pumace stone as needed.

Using long, firm strokes, rub the surface with the grain. Rub only long enough to remove the gloss; not enough to cut through finish.

Remove all traces of pumace stone with a clean, oil-saturated cloth. Then use a clean, dry cloth to remove the oil. Polish with a clean, woolen cloth.

Note: Water may be used in place of the oil. However care must be taken to keep the rubbing cloth wet.

Suggestions and safety tips: Use newspapers to protect surfaces under and near articles being cleaned and finished.

Protect your clothing and skin from solvents, cleaners, etc. Do not inhale dust and fumes. Work in a well-ventilated place, away from fire.

Mix paint or enamel well before using. Pour small amount into can or jar to use, and keep remainder covered. Keep paint, solvents, and cleaners covered when not in use.

Get rid of cans and jars used for mixing paint and cleaners. Burn used cloths and papers.

Use the right kind of brush for the job. If using cloth, be sure it is lint-free.

Clean and store brushes properly when not in use. Wash cleaned brushes with soap and warm water; dry thoroughly; wrap in paper and lay on flat surface.

Be sure to clean brushes with the proper solvent. For example, brushes used to apply shellac should be cleaned with denatured alcohol.

Other materials and their cleaners are: (1) paint, turpentine or kerosene; (2) enamel, turpentine; (3) lacquer, lacquer thinner; (4) varnish, turpentine or solvent listed on container, and (5) penetrating seal, lacquer thinner, turpentine, or mineral spirits (read label on container).

WARNING: Paint, varnish, penetrating seal, enamel, lacquer, turpentine, mineral spirits, and denatured alcohol are flammable and poisonous. *So be careful!*

BEST RECIPE OF THE MONTH

WE INAUGURATE a new custom this month—a diet recipe in every issue. To launch this feature, we asked readers to contribute their favorites. Next month, you'll find the diet-special separate from our regular recipe column.

First prize goes to Mrs. J. H. Long, Route 8, Jacksonville, for her low-fat yet luscious Chicken Creole. Both Mr. and Mrs. Long are on low-fat diets and she finds that this savory saucing brightens their menus.

Low-fat Chicken Creole

1½ to 2 pound fryer
2 tablespoons chopped onion
2 tablespoons chopped green pepper
½ cup strained tomatoes
1 cup chicken broth, strained of fat *OR*
1 cup hot water with chicken bouillon cubes
¼ teaspoon salt
¼ teaspoon paprika
3 tablespoons flour
1 teaspoon lemon juice
½ teaspoon prepared horseradish
½ cup mushrooms (without butter)
½ cup pimiento

Cut fryer into serving pieces. Bake chicken, with no oil or shortening, in covered pan at 375 degrees for 30 minutes or until tender.

Combine onion, peppers, tomatoes, chicken broth, salt, and paprika, stir in skillet until vegetables are tender. Thicken with flour. Add remaining ingredients, including chicken, and simmer a few minutes.

Serve on rice. Serves 3 or 4.

Pies, Please!

Show us the man who doesn't like pie—IF you can. They might be casual about cake, indifferent to custards and just tolerant of ice cream. But big or little, six or sixty, they like a crisp-crusted, melt-in-the-mouth slice of pie.

So send us your very best pie recipe. It might be the very one our judges want for our September issue.

Mail your entry, complete with name and address, by July 28 to:

Best Recipes
FLORIDA GROWER & RANCHER
P. O. Box 2350
Tampa, Fla.

First prize wins $5; Second prize $2. A three-year subscription goes with honorable mention awards.

Second prize goes to Mrs. A. A. Tillou of DeLand who sent in two delectable recipes. The first is for a creamy custard, equally good for a diabetic diet or for the reducer who wants a sweet without sugar.

Sugarless Baked Custard

2 eggs
1 tablespoon sugar substitute
1/16 teaspoon salt
2 cups milk
grated, fresh coconut—if desired
½ teaspoon nutmeg

Combine the first four ingredients. If desired, grate and add a fresh coconut. (Ummm! This makes the custards especially good.)

Add nutmeg, beat well and pour into six oiled custard cups. Place cups in pan of water.

Bake at 350 degrees for 20 minutes, or until a silver knife comes out clean when inserted into custard center.

• • •

Delicious Brown Bread

Mr. Tillou can eat no white flour. Therefore his wife bakes a heavenly whole wheat or graham bread this way:

Place 1 package yeast and 1 tablespoon honey in a bowl with 1 cup warm water. Let stand until it foams.

Add 1 cup graham or whole wheat flour and 1 teaspoon salt to yeast mixture, stir well. Now add 2 cups flour and stir in well. (A tablespoon of sesame seeds can be added, if desired.)

Press dough (which will be quite stiff) flat in a 4 by 8 inch oiled loaf pan. Let rise until just above top of pan. Bake for 40 minutes at 350 degrees.

Working Hint: Mrs. Tillou lines the loaf pan with margarine papers. They automatically grease the pan and peel off easily after the bread is baked.

Plentiful Foods for July

Turkeys and plums will head the plentiful foods list for July, according to the Food Distribution Division of the USDA's Agricultural Marketing Service.

Other items on the July plentiful foods list will include ice cream, eggs, peaches, lemons and limes, summer vegetables, peanut butter, and vegetable fats and oils.

SHORT CUTS

(A $1 prize will be awarded for each Short Cut Published.)

Save the top cut from a pineapple and place in a clay pot of rooting soil or in water. It will root and form a new plant which will bear fruit. *Mrs. H. G., Rochester, N. Y.*

• • •

Frozen orange juice or lemonade, diluted with ice cubes, are good thirst quenchers when carried in thermos jugs for long car trips. *R. S., Atlanta, Ga.*

• • •

Hold picture backs snug in frames with wornout phonograph needles instead of brads or nails. The needles lie flat and are easy to drive. *L. L., Miami, Fla.*

• • •

Double the life of flowers by cutting their stems at a long slant. They absorb more water that way. *Mrs. D.L.S., Orlando, Fla.*

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Print plainly name, address with zone, size and style number.

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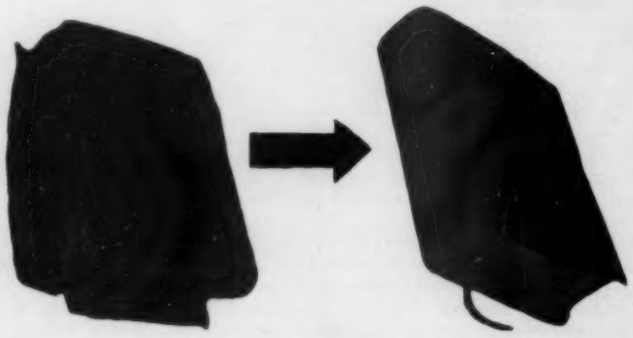

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Pre-Season Planning:

New Developments in Livestock Feeding

By DR. T. J. CUNHA
Head, Animal Husbandry & Nutrition
Florida Agricultural Experiment Station

QUITE A FEW developments, which have increased rate of gain and efficiency of feed utilization, have occurred in animal feeding. These new developments are making it possible for the livestock man to produce more efficiently and economically.

The use of stilbestrol for fattening steers in dry lot, for instance, has increased rate of gain about 18%. Moreover it has decreased the amount of feed needed per pound of gain by about 12%.

Stilbestrol can be given in the feed or it can be implanted with equally good results. Unless used in excess of recommended levels, it has no effect on carcass quality.

Pasture will vary in its natural stilbestrol activity. Thus, one will need to experiment to determine the level of stilbestrol which will give good results on his own pastures.

Other, more potent and effective hormones or combinations of hormones, studies underway indicate, may also have a place in future cattle programs. The place of hormones in cattle feeding is only in its beginning stages.

Many nutritionists will recommend the feeding of antibiotics—at nutritional level of 70 to 80 milligrams per head daily—for fattening steers.

With beef cattle, antibiotics have been shown to increase the rate of gain, carcass quality, and hair coat bloom. They have also lessened scours, bloat, shipping fever, and the incidence of liver abscesses.

The higher the disease level and stress factors encountered on the farms, the more help is apt to be obtained from antibiotic supplementation.

Use of tranquilizers in cattle feeding is in its beginning stages.

Hydroxyzine (trade name is Tran-Q) has been approved for use in steer feeding. The recommended level is 2.5 milligrams per steer per day.

Results of 21 trials to date, when averaged out, show that this tranquilizer increases daily gain 8.1% and the efficiency of feed utilization by 7.4%.

Added return per steer by using Tran-Q was $4.83. The carcasses graded slightly higher with the animals fed Tran-Q.

Pelleting of feeds is being discussed quite widely. It is of benefit with certain high roughage rations for both beef cattle and swine.

But the big question is: Will the additional benefits, which pelleting gives, pay for the cost of pelleting?

In a few cases, it will. But in the majority of cases, it will not *at present cost* of pelleting.

More study is needed on the value of pelleting feeds for livestock:

One of the main reasons that pelleting helps is because it compresses the feed. Thus the animal eats more total feed, and so gains at a faster rate.

No one, however, has shown that pelleting increases the digestibility of feeds. In fact, there is some indication—which needs more verification—that pelleting may actually cause a slight decrease in digestibility of certain nutrients.

How much pelleting will increase in the future will depend greatly on engineering developments which might substantially reduce the cost of pelleting.

The swine industry is moving from pasture feeding to confinement feeding of growing-fattening hogs in so-called "pig parlors."

Presently, it is estimated that 30 to 40% of all pigs are being finished by confinement feeding. In 10 years, according to estimates, 75% may be fattened that way.

More feeders are supplying complete rations, rather than providing free-choice feeding of corn and supplements for young pigs up to 50-75 pounds. Complete rations are also being used more for older pigs, if fed in confinement.

However, because of the extra cost of grinding and mixing, the economics of gains are still in favor of free-choice feeding.

The practice of early weaning is increasing. But swine producers should go into the program slowly:

It is true that pigs can be weaned at three weeks. However, most swine producers will find the most practical early limit to be five to six weeks.

Silage can be fed to sows during the gestation period *if* proper supplements are fed. Silage cuts down feed costs and tends to keep sows from getting too fat. In certain experiments, litter size was increased.

Research on additives to feed rations are continuing. Much information is still needed on unidentified growth factors, tranquilizers, antibacterial compounds, antibiotic combinations, and the value of the new antibiotics.

Use of feed additives, including antibiotics and antibacterial compounds, *does not reduce* the need for good swine sanitation and management practices.

More attention is being paid to different stages of the life cycle of the pig.

The ration fed during one period often influences results obtained in a later period. Also, nutritional needs are different for each stage of the life cycle.

When feeders compound rations for swine, they should consider the following stages:

Pre-breeding period, gestation period, lactation period, creep-feeding period, finishing-for-market period, and developing herd-replacement animal period.

In many cases, the changes taking place in swine production will necessitate more study in swine nutrition.

Thirty to 40% of all pigs farrowed still die before they reach market. Many of these losses could be prevented—if the farmer would apply the experimental information already available.

Even though many swine producers supply a well-balanced ration, too many of them do not feed enough of it to their pigs. As a result, they are still short of needed nutrients.

America's swine industry is becoming highly specialized.

More swine producers are feeding their pigs in confinement. This practice will result in re-evaluating nutrient requirements and in devising economical rations designed for continuous feeding on concrete.

Furthermore, the trend toward confinement feeding and toward large feeding units will tend to bring more automation and efficiency into swine operations. Vertical integration is starting in many areas.

Better feeding and nutrition, more efficient production and management practices, and more meat-type hogs are "musts" for the future.

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Rust-Resistant Pole Bean Sought

BEAN RUST is a serious problem for Florida pole bean growers. It particularly affects spring crops.

For this reason, selection of a rust-resistant pole bean variety is being attempted by researchers at the Sub-Tropical Experiment Station, Homestead. Personnel of the Gainesville and Bradenton Experiment Stations also are trying to find a rust-resistant variety having a performance record equal to McCaslan.

John C. Noonan, assistant horticulturist, is in charge of work at the Sub-Tropical Station. He is interested primarily in testing and selecting varieties resulting from breeding trials at Gainesville and Bradenton.

Pole bean growers in Florida have a definite financial interest in this breeding and selection program. The reason is easily stated:

During the spring months, bean rust has a yield-suppressing effect on present varieties. Rust can be controlled with the use of sulfur and carbamates—but the necessity of frequent applications represent a major cost item to growers.

Consequently it is difficult for growers to maintain a rust control program and still stay in the highly competitive market.

A relatively new variety, Florigreen, has proven rust resistant. However, except in the spring, it lacks the high yield of McCaslan.

This is particularly true primarily in the Homestead area. Yields are about equal in other parts of the state. In south Florida, Florigreen yields more than rust-affected McCaslan during the spring.

Florigreen, however, does not have as good a flavor as McCaslan. But it does have a deeper green color and early maturity.

Presently, Florigreen holds the best hope for the Florida pole bean grower.

Noonan says work is progressing in breeding and selection in an effort to provide Florida growers with a pole bean containing the highest number of desirable characteristics.

"I have a wonderful mother-in-law; she won't even speak to me."

July 'Specials' for Cattlemen

FLORIDA RANCHERS will be busy this month—especially if they follow the advice of J. E. Pace, Extension animal husbandman.

"July specials" for Florida cattlemen, suggested by Pace, include:

If their degree of finish warrants it, sell your fattened grass steers now. Grass gets poor in quality in July and August.

Sell all cows which did not calve during the 1958-59 season. Sell all cows which had small or "unthrifty" (insofar as gain is concerned) calves.

Determine if your pastures are overstocked. If so, reduce your herd to fit your pasture.

Check your winter feed supplies.

Get your silos and hay barns in good condition. Check machinery used for making silages and hay.

Vaccinate all calves against blackleg and malignant edema. Check with a veterinarian about the best brucellosis control program for the herd.

Take all the bulls away from the cows. Late calves seldom do well in Florida.

Cull out all heifer calves which are not growing out as they should. And dehorn all calves.

Spray cattle against flies, as needed. Check for parasites, internal and external.

Pregnancy-test all cows. (It will cost $1 or less to test a cow for pregnancy, whereas it costs $15 to $25 to carry a non-pregnant cow through the winter.)

* * *

Mechanization

(Continued from Page 14)

pushed into the storage room. There they remain until the eggs are taken to market.

Poultrymen, like the followers of most other segments of agriculture, do not like to go into debt for new equipment—regardless of the benefits it offers—when they are operating in the red.

PORTABLE TABLE enables the easy movement of eggs from washer to grader or other places, as desired. It also eliminates having to stoop over to pick up eggs.

However, there's this to consider: Egg prices will go up again this coming fall and winter. At that time, those who have survived the storm may do well to take inventory of their management practices.

With few exceptions, every producer can slice a little off his per-dozen-egg cost.

Pre-Season Planning:

Keep Produce Fresh

FLORIDA's fresh fruit and vegetable industry has overcome many difficulties imposed by distance to market and the perishable nature of produce.

Nevertheless, the industry still has many unsolved problems. R. K. Showalter, horticulturist with the Gainesville Agricultural Experiment Station, points out:

Increasing numbers of growers are practicing methods for maintaining much of the garden freshness of fruits and vegetables. But basic principles involved in maintaining freshness need consideration also.

Fresh vegetables and fruits contain large quantities of moisture. Severe wilting of some produce occurs if even small quantities of moisture are lost.

One of the chief benefits of prepackaging, Showalter adds, is the reduction of wilting and the maintenance of freshness.

Many vegetables—such as sweet corn, celery, peas, lettuce, and many greens—can be kept fresh with ice. This provides both moisture and refrigeration.

(For this reason, large quantities of ice are used for precooling vegetables before and during shipping, and during display in retail stores.)

But other vegetables—such as potatoes, onions, melons, okra, and berries—lose moisture more slowly. Therefore, for maximum storage life, they should not be kept wet.

When a vegetable or fruit is bruised or subjected to mechanical injury, the horticulturist points out, the storage life is shortened by an increase in respiration rate or an attack by spoilage organisms.

The skin on most fruits and vegetables is very resistant to attacks by microorganisms. But once the skin is broken, the organisms enter easily—and rapid decay often results.

Our specialization puts more money in your pocket!

"... The better the vineseeds you plant ... whether watermelon, cantaloupe, squash or cucumber ... the bigger your profit is bound to be!" says Lawrence Robinson, Sr., known the world over for his lifetime of vineseed leadership. "The Robinson family has spent nearly a century on specialized breeding for new strains that are better suited to your growing conditions and market requirements. Our specialized seeds will produce maximum yield and quality and a bigger dollar return for you! Ask for Robinson Vineseeds, with the bright blue SRS label."

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Bloat *(Continued from Page 15)*

by hay conditioners—and perhaps by some types of forage harvesters.

De-watering the forage also may remove bloat-producing substances or concentrate natural foam preventatives.

Sometimes, antibiotics (terramycin and penicillin) help control bloat.

Often these drugs are given with other feeds or by capsules, containing 75-100 milligrams, daily before pasturing. They may be mixed with the salt which is fed in mineral boxes in the pasture.

This practice requires less labor. Some researchers, however, doubt its value for two reasons:

First, consumption is likely to be variable. Therefore the animals which most need medication may not get it.

Another objection is that exposure to moisture, including saliva, is likely to cause rapid deterioration of antibiotics.

Generally, the antibiotics do help. But their effect is likely to wear off after 10 days or two weeks.

Most pasture and feedlot bloat, it seems, can be prevented.

Therefore managers of herds in which bloating has seldom—or never—been observed need not be alarmed. There is no reason to begin treating feeds or animals in these herds.

Just the same, it *is* a good idea to be prepared.

Next comes the question about what should be done for a cow which is already bloated. There are several treatments:

Bloat caused by froth may be alleviated by an effective dose of oil given by mouth.

Drenching, however, must be done with care: When the cow is bloated, there is an increased danger that the drench will go into the lungs.

So perhaps it's best to use a stomach pump which is forced into the rumen. (In an emergency, a piece of garden hose can be used.)

To insert the tube, pull the tongue to one side and push the tube right down the middle. The tube may go into the trachea; so if the animal coughs, pull it right back out.

At first, in any event, insert the tube only six inches to a foot. If it has gone down the wrong way, you can hear the cow breathing through it.

Usually, a tube will slide down the esophagus into the rumino-reticular cavity very easily. Then about a pint of edible oil can be poured into the rumen. In most cases of pasture bloat, this usually brings almost immediate relief.

Turpentine or kerosene (about ½ cup) usually will relieve frothy bloat. But undesirable side effects, causing digestive disturbances, occur often.

When medication doesn't help, walking the animal or causing her to stand with her front feet higher than the rear feet sometimes help. A smooth stick placed into the mouth as a bit may cause belching to begin.

In many cases it may be necessary to puncture the rumen. This seems drastic—but if other remedies don't bring relief, the operation should not be delayed:

Unless the gas is allowed to escape, a fully bloated cow may have but a few minutes to live.

To remove the gas by puncture, make a hole in the left side within the triangle formed by the last rib, the back bone, and the hip bone.

Ordinarily, the puncture should be done with a trocar and cannula. . . . but many cows have been saved by quick action with a pocket knife.

It is also possible to inject oils and other foam breakers into the rumen at this triangle. This is done easily with a gravity set designed for injecting calcium solutions for milk fever.

Just be sure the needle actually has entered the rumen. If oil should be injected into the body cavity, rather than the stomach, serious complications could occur.

Be sure to make the injection in the left side. And hold the needle in place during the entire process.

Our knowledge of bloat is sketchy. But tremendous effort is being expended by researchers throughout the world and this centuries-old problem is likely to be solved before many years.

In the meantime, certain management practices usually are helpful:

Be alert. Maybe you have never seen a case of bloat—but your whole herd could be affected at any time.

Keep cattle in good flesh but not fat. Most fatal bloat occurs in cows which are either underfed or in those which are too fat.

Mixtures of grasses and legumes are less likely to cause bloat than legumes alone.

Hay or a good pulp mixture fed in the pasture may help prevent frothy bloat.

Coarse feed has been observed to stimulate belching in case of feedlot bloat.

Immature forage is more likely to cause bloat than is older forage.

A good fill of hay, before cattle are turned onto pasture, may prevent bloat.

Bloat, as well as other herd health problems, should be discussed with your veterinarian. Ask him what to do before he gets there.

Moreover, it is a good idea to be prepared with edible oils, antibiotics, trocar and cannula, and gravity injection equipment.

If bloat strikes, summon professional help at once. But don't delay treatment for long after marked distension of the rumen is noticed.

Remember: A bottle of salad oil or quick work with a clean, sharp knife or trocar may save a cow.

* * *

Scholarship Winner

Mary Jane Hodges of Plant City was one of 20 agricultural college juniors from 18 states who recently received scholarships from Chas. Pfizer & Co., Inc.

Scholarship applicants are required to prepare extension teaching plans on animal health or on health programs that benefit humans as well. They must have outstanding scholastic records and extensive background in 4-H Club work.

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BEFORE TREATMENT: Screw-worm infestation is shown in dehorning wound. (See enlarged circle.) One spray treatment of CO-RAL killed all screw-worms. Within 3 days discharge had stopped, scab had begun to form.

AFTER TREATMENT: (Six weeks later). The single CO-RAL treatment has not only killed all the screw-worms, but has protected the wound from reinfestation and allowed it to heal completely, as shown in this photo.

Now, at last, you can treat screw-worm infected wounds once and forget 'em! For Co-Ral, the revolutionary livestock insecticide, kills screw-worms with just one spray treatment. And what's more, that one spray treatment protects the entire animal for up to 20 days . . . until most wounds heal.

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So, this year reduce your handling and labor by controlling screw-worms with Co-Ral . . . the simple spray-way to healthier animals, better weight gains and more profit per head. Order Co-Ral today!

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Be Safe — Not Sorry

TRACTOR ACCIDENTS accounted for more than 1,200 deaths in the United States last year. In addition, there were 48,000 non-fatal accidents involving tractors.

Consequently, reports A. M. Pettis, associate agricultural engineer with the Florida Agricultural Extension Service, special emphasis is being placed on tractor and electric safety during 1959.

"For safe tractor operation," advises Pettis, "the following general rules should be closely observed:

"Keep tractors at safe speeds in the field and on the highway.

"Avoid operating tractors on dangerous inclines or near treacherous banks.

"Pull from the drawbar, not the axle.

"Keep children away from tractors and other farm machinery."

The 10-14 age group, says Pettis, had more deaths from tractor accidents than any other age group. He advances two reasons for this:

Many accidents occur when boys try to drive a tractor without experience. Furthermore, many boys don't realize the power in a tractor and the danger of operating it carelessly.

To avoid accidents when using electricity, turn off the power before working on any motor, lighting fixture, or wiring. The safety specialist explains:

"You can be killed 'just as dead' by 115 volts as by 115,000 volts." Pettis also recommends:

"Ground all washing machines.

"Do something about a shock from any appliance. A slight shock is a warning; the next could be fatal.

"Make certain there are ample circuits to avoid overloading."

"One farm out of every six will have a disabling injury during the year," according to Maynard Coe, National Safety Council farm safety director.

The cost of these accidents, for medical and hospital expenses alone, will total $40 million a year. In addition, about 20 million man-days—enough time to produce over half of the nation's wheat crop—will be lost as a result of accidents.

Farm Health

Authentic health information for farm families, prepared through the cooperation of the Council on Rural Health, American Medical Association, and the Florida Medical Association.

Afflictions of the Sun

LIKE MOST earthly blessings, the sun with all its light and warmth is not without some mixture of evil.

Philippe de Mornay, the 16th century French writer and statesman, put it this way:

"Though the sun scorches us sometimes and gives us the headache, we do not refuse to acknowledge that we stand in need of its warmth."

For the farmer and rancher, the benevolent sun, which sheds light and provides energy for the growth of crops, is of far greater importance than the malevolent sun which sometimes causes him or his help to be stricken with sunburn, heat stroke, or heat exhaustion.

Most persons whose economic lives depend upon agricultural pursuits must work often in direct sunlight. For this reason, a review of the ill effects of excess exposure to the sun seem in order at this season.

Let's consider the major problems individually:

Severe or acute sunburn is seldom a problem on the farm or ranch. This is because those who live and work there have developed a healthy respect for this avoidable illness.

However workers in the field or on the range cannot completely protect themselves from the sun because face, neck and hands usually must remain exposed. This sometimes causes minor troubles such as irritation of the eyes or burning and cracking of the lips.

Long-term exposure is a factor, but not a direct cause, in certain types of skin cancer which sometimes occur in older persons on the cheeks and the backs of hands. These are slow-growing cancers and are easily removed with complete cure.

As in many other afflictions, the best treatment for sunburn is prevention.

When excess exposure is necessary, the lips may be protected with zinc oxide paste; the eyes, with sunglasses. Also, there are several good protective lotions and creams on the market these days. The best of these contain para-amino-benzoate.

Continued exposure to an outside temperature which is higher than the body temperature (98.6°F.) causes sunstroke or "sun sickness." This effect is made worse by high humidity in the surrounding air.

Symptoms are headache, dizziness, restlessness, rapid pulse, and a decrease in sweating. The body temperature remains normal.

If the condition is severe, there may be a marked weakness, palor of the face, and a cold, clammy skin.

Once again, prevention is the best cure. Rest in the shade, however, usually produces a rapid recovery.

Persons who are susceptible to heat or sunstroke should be particularly careful to avoid long exposure to the hot sun, or to any high temperature.

A complication which sometimes occurs in combination with heat stroke is heat cramp. This is caused by a large loss of salt from the body through excessive sweating.

The cramps occur in the muscles of the arms, legs, or abdomen. The drinking of large quantities of water may bring on or aggravate the cramps because the extra water tends further to dilute the already decreased stores of salt in the body.

Heat cramps can be prevented and cured by taking salt tablets. This should be done whenever a person works under conditions which produce long periods of excessive sweating.

Plain salt may cause irritation of the stomach. Therefore salt tablets taken for this purpose should have a coating which prevents them from dissolving until they have passed through the stomach.

Heat exhaustion may be considered as a more severe form of heat stroke. Because it is a very serious condition, it should be treated as a real medical emergency.

In heat exhaustion, there is a disruption or playing-out of the body's cooling mechanism so that heat is retained within the body. The symptoms may develop very rapidly, but often are preceded by the symptoms of heat stroke.

The afflicted person shows collapse with a rapid rise in the body temperature so that the skin feels very hot and dry. He may become delirious. The thing that distinguishes this more dangerous condition from simple heat stroke is the high fever.

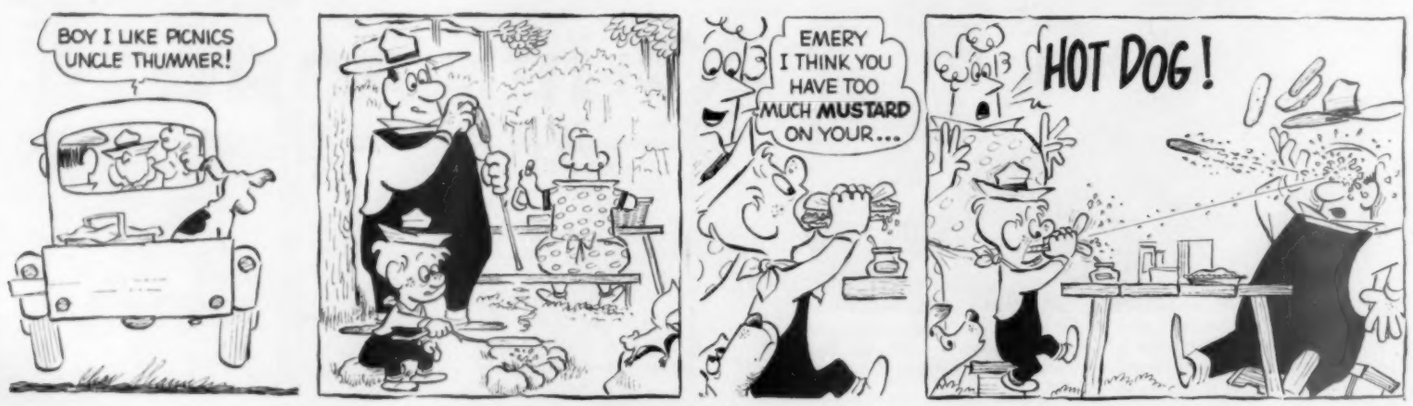
Because of the seriousness of heat exhaustion, a doctor should be notified immediately.

Emergency treatment consists of any measures which will bring down the high fever. This can better be accomplished with cold water sprays or sheets soaked in cold water than with ice. Fanning the moistened body will help cooling by increasing evaporation.

If the patient is able to swallow, he should be given salt tablets and plenty of fluids to drink. *Never*, however, force fluids down the throat of an unconscious person.

THUMMER GREEN — —

- - - SHARMAN



Fences *(Continued from Page 13)*

wires to apply tension until the post starts pulling away from the soil.

Pull assembly: A double span and brace pull assembly is recommended. Pull the wire to the last post in the assembly and attach to the center post (see photo).

Space the pull assembly every 40 rods or every two rolls of wire. This should be constructed wherever there is a sharp change to the direction of the fence (Figure 2).

Measure the distance around the post before attaching the wire; add five inches for wrapping. This allows plenty of length to carry each strand around the post and wrap it on itself at least five turns.

The center post of the pull assembly should be at least 5″ in diameter; the brace posts, at least 4″ in diameter. The horizontal compression members should be 4″ in diameter.

Diagonal tension wires should be placed as shown in the photo.

End assembly: The end assembly (Figure 3) is used any place where there is an opening—such as at gates, cattle guards, etc.—in the fence. It is constructed exactly as one-half of a corner assembly.

Since the end assembly carries a great load, good construction is essential.

The line fence is, of course, the major part of the fence.

Line posts should be 2½″ to 4″ in diameter and should be spaced not more than 16′ apart. A 14′ or 12′ spacing is much better in most Florida soils.

Depending on soil conditions, line posts should be set from 18″ to 30″ deep.

In attaching the wire to line posts, always attach it to the *inside* of the posts. Thus the leaning or pushing of animals against the fence will not tend to pull out the staples.

Also, never drive the staples all the way (Figure 4). Leave enough clearance between the wire and staples so that the wire can move back and forth laterally:

(This will prevent the staples from being loosened or pulled out due to (1) expansion and contraction of the wire or (2) by animals pushing against the wire.)

Do not drive staples straight in or parallel to the grain. They should angle down and be driven diagonal to the grain (Figure 4).

Moreover, the amount of tension in the wire fence is important. If about one-half the curve in the tension curve is pulled out, the tension on the wire will be about right. The tension curve is found on each horizontal wire between the vertical stay wires.

Fencing should always be spliced at a post.

To prevent livestock from trying to reach over the fence, place one or two more strands of barbed wire at the top.

Place the first strand 2″ above the top of the woven wire. If a second strand is desired, it should be 4″ to 6″ above the first.

Should you desire to make the fence hog-proof, place a strand of barbed wire 2″ below the bottom strand of woven wire.

Construction practices for building a barbed wire fence are the same as for building a woven wire fence. Figure 5 shows the common spacings of barbed wire for different height frames.

In summary, remember: Good materials alone do not make a good fence. Good workmanship and using an approved corner, pull and end assembly is essential.

This combination will assure a lasting fence—one that will do the job and require very little, if any, maintenance.

* * *

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As president of the Waldo Rohnert Co., Fred Rohnert is no stranger to his company's fields of lettuce, beets, celery and other row crops. "Our breeders and scientists spend considerable time growing extensive field trials for new seeds and becoming familiar with your problems as a grower. And they personally select the best vegetables grown for further breeding toward the development of ever bigger and better crops! Look for the field expert's seed—SRS seed grown by vegetable seed specialists."

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Still Your Most Dependable Fungicide

The new organic fungicides that have received so much publicity in the past few years may be superior to some of the older standard sprays for certain isolated applications. But it is well to remember that many of these new "miracle" sprays have yet to stand the test of time.

We suggest that unless the superiority of a new fungicide is conclusively proved by exhaustive tests under severe climatic conditions, it would be wise to stick with the dependable fungicides.

Seventy years of experience have demonstrated to farmers, orchardists and agronomists that copper sulfate fungicides, if properly formulated and applied, are completely dependable, chemically effective under a wide variety of conditions . . . and last but not least . . . **economically practical!**

Triangle Brand Copper Sulfate & Basic Copper Sulfate are recommended for controlling the following diseases:

Bitter Rot — Scab — Blotch — Fruit Spot — Black Rot
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Boot, Tomato & Spinach Damp-off (Seed Treatment) — Lettuce Drop
. . . and many diseases attacking the foliage and fruit of citrus and nut trees.

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Agri-mycin 500 can help you control the devastating losses from bacterial spot as shown above. Used in seedbeds, or newly planted fields, Agri-mycin will help you get a higher percentage of disease-free plants which produce quality fruit.

TOMATO and PEPPER PRODUCERS:

Control Bacterial Spot Better Than Ever Before with

Agri-mycin® 500*

*Agri-mycin brand of oxytetracycline-streptomycin formulation
*U. S. Patent 2,777,791

THE ONLY PATENTED COPPER-ANTIBIOTIC COMBINATION

Latest Florida Experiment Station reports show that *basic copper plus streptomycin formulation gives far more effective control of bacterial spot than copper compounds or antibiotics used separately.*

Now you can get this same effective and economical control with Agri-mycin 500, the combination of antibiotics—streptomycin and Terramycin*—plus copper.

The copper and antibiotics work together to prevent and eradicate bacterial spot. The antibiotics are absorbed into the plant tissues to work from within as well as on the surface . . . explaining why Agri-mycin is effective even if disease has already attacked your tomato or pepper plants.

Agri-mycin 500 is also effective against these other costly fungal diseases: Early Blight, Late Blight, Septoria Leaf Spot, Anthracnose, Leaf Mold and Cercospora.

Get Agri-mycin 500 now for more effective disease control in your tomato and pepper crops than you've ever had before.

*Terramycin brand of oxytetracycline

Florida Experiment Station Seedbed Tests (1)

	Amounts Used/100 gal.	% Healthy Pepper Plants	% Healthy Tomato Plants	Aver. Total Control Effectiveness
No treatment (Control)	—	0	0	0
Basic Copper Sulfate	4 lbs.	20	0	10%
Calcium Copper Chloride	4 lbs.	3	3	3%
Streptomycin	200 ppm.	87	7	47%
Basic Copper *and* Streptomycin (as in Agri-mycin 500 Formulation)	4 lbs. 100 ppm.	87	80	83%

Tomato varieties: Jefferson, Manalucie; Pepper variety; California Wonder. Seven sprays at 3-6 day intervals under natural Florida weather conditions.

(1) Plant Disease Reporter, Vol. 43, No. 2, February 15, 1959

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Science for the world's well-being

Pfizer

Agri-mycin 500 and Agri-mycin* 100 are now available from these Florida Distributor locations:

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Homestead
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Florida Agricultural Supply Co.

South Miami, Orlando, Winter Garden, Sanford, Winter Haven, Lake Wales, Fort Myers, Immokalee, Bradenton, Pompano Beach, Jacksonville, Tampa, Cottondale, Fort Pierce

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Belle Glade, Fort Myers, Gainesville, Homestead, Ocala, Pahokee, Palmetto, Plant City, Pompano Beach, Sanford, Vero Beach, Wauchula, West Palm Beach

Florida East Coast Fertilizer Co.
Homestead

*Agri-mycin brand of oxytetracycline-streptomycin formulation
*U. S. Pat. No. 2,861,900

5-lb. bag of Agri-mycin 500 makes 100 gallons of spray . . . enough to treat over 2 acres of field-planted seedlings depending on plant size. Save 10% on the 25-lb. bag which makes 500 gallons of spray.

How to get best results with

Agri-mycin® 100 and 500

GROWER TECHNICAL INFORMATION

Agri-mycin 100

Antibiotics are relatively new products in the field of plant-disease control. As with all chemicals, antibiotics must be handled and used according to specific directions, if the best results are to be obtained.

Agri-mycin 100, an antibiotic formulation of streptomycin and TERRAMYCIN, is recommended for the control of a number of plant diseases. This combination of antibiotics is highly active, at low concentrations, against bacterial and downy mildew-type plant diseases. This formulation is synergistic against the bacteria, and aids in retarding development of resistant strains of disease. The active ingredients are readily soluble and rapidly absorbed by the plant, providing an internal protection from infection. Agri-mycin 100 is a stable, free-flowing, noncorrosive, fine powder intended for use in sprays, dips, soaks and dusts.

GENERAL PROPERTIES

COMPOSITION: Agri-mycin 100 is an antibiotic formulation containing 15% streptomycin activity, 1.5% Terramycin* activity, a wetting agent and an acidifying agent, in an inert diluent.

In-vitro laboratory tests with this formulation showed that it is more effective than streptomycin alone. The combination of streptomycin and Terramycin is found bactericidal while streptomycin alone only inhibits the growth of the test-plant pathogens. In addition, the combined antibiotics are effective against the disease organisms at lower concentrations than streptomycin alone.

In-vivo greenhouse tests showed that the Agri-mycin 100 formulation is more effective than other streptomycin preparations available commercially. The Agri-mycin 100 formulation was compared with streptomycin products which did not contain Terramycin. See test results.

Comparative Tests with Commercial Antibiotic Formulations

TEST 1. Control of Halo and Common Bean Blights with Agri-mycin 100 and two streptomycin products.

HALO BLIGHT

Formulation Sprayed	% Disease Control
100 ppm Streptomycin Liquid†	8%
100 ppm Streptomycin Powder*	66%
100 ppm Agri-mycin 100	93%

COMMON BLIGHT

Formulation Sprayed	% Disease Control
200 ppm Streptomycin Liquid†	0%
200 ppm Streptomycin Powder*	64%
200 ppm Agri-mycin 100	75%

Note:
†Streptomycin Liquid-commercial preparations of Streptomycin Nitrate
*Streptomycin Powder-commercial preparations of Streptomycin Sulfate

BACTERIAL RESISTANCE STUDIES—TEST II-Control of Fire Blight organism Erwinia amylovora

Initial Minimal Inhibitory Concentration (Amount needed to control organism)	
Agri-mycin 100	(1 ppm)
Streptomycin	(2 ppm)
Minimum Inhibitory Concentration after 13 transfers* (Amount needed to control organism)	
Agri-mycin 100	(4 ppm)
Streptomycin	(500 ppm)

*Equivalent of 13 spray applications

Agri-mycin 500

Agri-mycin 500 is an antibiotic-copper combination of streptomycin, Terramycin and water-insoluble neutral copper possessing broad antibacterial and anti-fungal activity. The Agri-mycin 500 formulation combines the active components in proportions which are synergistic against microorganisms: the antibiotics synergize copper against fungi and the copper synergizes the antibiotics against bacteria. For this reason, *Agri-mycin 500 is indicated to be significantly more effective* against bacteria than the antibiotics alone, and significantly *more effective against fungi* than copper alone. The formulation and components of Agri-mycin 500 are protected by U. S. Patent No. 2,777,791. This patent covers the composition, formulation and use of streptomycin with tetracycline and streptomycin-type antibiotics with basic copper fungicides for the control of bacterial and fungal plant diseases.

GENERAL PROPERTIES

COMPOSITION: Agri-mycin 500 is an antibiotic formulation containing 1.76% streptomycin, 0.18% Terramycin, 42.4% tribasic copper sulfate (metallic), and 55.66% inert ingredients.

The active ingredients in this formulation have been proven to be synergistic in their relationship to each other and the final efficiency of the product. Research findings and field trials have shown specifically that the antibiotics synergize the copper against fungi and the copper synergizes the antibiotic activity against bacteria.

CONTROL OF BACTERIAL BEAN BLIGHT

Spray Treatment	Concentration per 100 gals.	Degree of Infection
Check-Control	—	100%
Basic Copper (53%)	4 lbs.	90%
Streptomycin*	5 lbs.	89%
Agri-mycin 500 (Streptomycin+ Terramycin+Copper)	5 lbs.	3%

*Commercial 15% Streptomycin formulation

CONTROL OF LATE BLIGHT OF TOMATOES

Spray Treatment	Concentrations/ 100 gals.	Degree of Infection
Check-Control (No treatment)	0 lbs.	60%+
Basic Copper (53%)	2 lbs.	40%
Basic Copper (53%)	4 lbs.	10%
Agri-mycin 500 (Streptomycin+Terramycin+Copper)	4 lbs.	0%

CONTROL OF EARLY BLIGHT OF TOMATOES

Spray Treatment	Concentration per 100 gals.	Degree of Infection
Check-Control (No treatment)	—	100%
Basic Copper (53%)	1 lb.	23%
Agri-mycin 500 (Streptomycin+ Terramycin+Copper)	1½ lbs.	16%

SPRAYING & MIXING DIRECTIONS

Agri-mycin 100 and 500 formulations contain antibiotics, and as such require special mixing and use directions to get the best results.

DO's

1. Mix wettable Agri-mycin powder in clean spray tanks.
2. Mix Agri-mycin with only the approved insecticides or fungicides for combination spray.
3. If unsure of combined effect of new untested fungicide or insecticide, apply the antibiotics first, in a separate spray application, to allow plant absorption.
4. Apply in recommended concentration and schedule.

DON'T's

1. Mix Agri-mycin with highly alkaline materials.
2. Mix Agri-mycin with clay diluents of any kind.
3. Mix Agri-mycin with fungicides or insecticides that have not been tested for compatibility.
4. Mix Agri-mycin with oil-emulsion sprays, as oil will interfere with antibiotic absorption.

Compatibility Studies

Agri-mycin is *compatible* and can be used at recommended levels with any of the following fungicides and insecticides for combination sprays.

COMPATIBLE

1. Mercury compounds
2. Copper formulations (except alkaline)
3. Dithiacarbomates (except Manganese)
   a) Ziram
   b) Zineb
   c) Ferbam
4. Captan
5. Phygon
6. Spergon
7. Malathion
8. D.D.T.
9. Parathion

Agri-mycin is *NOT* compatible with the following, and should not be used in combination sprays.

NOT COMPATIBLE

1. Alkaline Materials
2. Manganese Salts
3. Clay Materials
4. Lime or Lime-Sulfur

Soil Sample Analyses Pinpoint Fertilizer Needs

THE BEST TIME to take samples for a soil test depends on what you want the soil test to do for you.

So says Dr. G. C. Horn, soils specialist with the Florida Agricultural Extension Service. He adds:

No soil analysis can be better than the sample it represents. Therefore the sample must be taken carefully, so it will be truly representative of the tested area.

Concerning the accuracy with which a soil sample represents a given area, Dr. Horn declares:

"It depends upon the soil variability, the number of samples, the tools used for sampling, and the manner in which the samples are taken."

Soil sample analyses pinpoint the fertilizer ratios and practices needed to bring any individual farm, pasture or grove up to its peak production.

Usually it is not feasible for the grower to obtain all this information for himself. Consequently, to obtain such data, he must depend upon the various agencies that specialize in supplying this information.

Free analyses of soil samples —and fertilizer recommendations— are made for Florida residents by the soils department of the Agricultural Experiment Station, University of Florida, Gainesville.

Previous work has shown that 12 to 15 sub-samples are needed to make one composite sample if the necessary accuracy is to be obtained, Dr. Horn reveals. He also states:

The sub-samples are obtained by sampling the surface soil, usually to a depth of six inches. These must be taken with a suitable sampling too, and must be mixed well to make the composite sample.

Samples should *not* be taken immediately after heavy leaching rains, or during the latter stages of extended dry periods.

However samples *may* be taken during any season of the year for studying areas with abnormal plant growth.

Recommendations for taking accurate soil samples include the following:

Scrape away the surface litter before taking the sample. If the organic material that collects on the surface is not removed, it may affect the results of the analysis.

When fields have been recently fertilized, avoid sampling in the fertilizer band.

Obtain a composite soil sample by taking a small amount of soil, generally to a depth of six inches, in at least 12 or 15 different locations.

(Any soil areas that are distinctly different in appearance, crop growth, or past fertilizer treatment should be sampled separately— provided the areas are of such size and nature that they can be fertilized individually.)

Mix the sub-samples in a clean container. Retain about one pint of the composited sample for analysis.

Draw a map of the area and designate the location of each sample. Do not rely on memory for these locations.

Spread the samples out and allow them to air-dry. They should not be heated.

(Contamination from such things as dust, fertilizer, or gases should be avoided during the drying process.)

When the samples are dry, pack them for mailing in suitable containers—such as ice cream cartons or double paper bags.

Mark each sample plainly with the sender's name, address, and sample number. The samples should be numbered consecutively.

Address the samples to: Soils Department, Agricultural Experiment Station, Gainesville, Florida. Following analysis, the information will be returned to the sender.

For Best Cabbage Yields

BEST CABBAGE YIELDS are obtained on high pH soil which has received one nitrate of soda sidedressing.

Such is the indication of a study of cabbage fertilizer requirements conducted at the Potato Investigations Laboratory, Hastings. Dr. E. N. McCubbin, horticulturist, reports:

This study involved a split plot test. Soils of all main plots were limed to adjust the pH reactions to 4.7, 5.3, 5.8, and 6.1.

Main plots next were fertilized uniformly with a 7-9-9 fertilizer at the rate of 1,850 pounds per acre. These were transplanted to cabbage.

Each main plot was then divided into eight sub-plots. These were given supplemental nutrient treatments as follows:

Check plot (no additional nutrients).

One sidedressing (150 pounds of nitrate of soda per acre).

Two sidedressings (150 pounds nitrate of soda per acre).

Three sidedressings (150 pounds nitrate of soda per acre).

One-fourth pint starter solution (containing one gallon 20-20-20 liquid fertilizer in 100 gallons of water) applied per plant at transplant time.

One-fourth pint starter solution (containing 15 pounds of soda-potash in 100 gallons of water) applied per plant at transplant time.

Three foliar-nutritional sprays (six and two-thirds pounds nu-green in 100 gallons of water per acre).

Three foliar-nutritional sprays (20 pounds nitrate of soda-potash in 100 gallons of water per acre).

Results of this study showed:

In 1958, plants grown in plots at pH 6.1 significantly outyielded those grown in plots of soil at pH 4.7. Also plants grown in soil at pH 6.1 produced their best yield when sidedressed once with nitrate of soda 10 days after transplanting.

More than one sidedressing was required to produce maximum yields of cabbage for plants grown in plots of soil at pH reactions lower than 6.1.

Plants in plots treated with starter solutions and foliar-nutritional sprays yielded less than plants in sidedressed plots.

In 48 years you can learn a lot about cabbage!

"And here at Racine, we're actively carrying on a specialized program to produce even more and better varieties of yellows resistant cabbage," says Dave Walker, veteran of a lifetime in the cabbage industry.

"The cabbage seed you buy under the bright blue SRS label is the finest on the market. It's the product of nearly half a century of patient experimentation and intensive field trials. And along with all the other SRS vegetable seed research programs, we plan to keep right on working toward the best possible seed for your bigger and better cabbage crops!"

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	K-137	TEST AVERAGE
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% large and extra large eggs	73.6%	63.7%
Feed per dozen eggs	4.4	4.6 lbs.
Albumen quality (H.U.)	79.1	74.3
Body weight at end of test	4.2	4.7

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Light Limits Forage

THE INTENSITY of light may limit the yield of well-managed forage crops, cooperative USDA-University of Georgia studies indicate.

Light conditions at the site of the experiment (Tifton, Georgia) may set the ceiling on annual production of Coastal Bermuda grass at 12 tons of dry matter per acre—no matter how much fertilizer and water are added.

So believe the participating scientists. Moreover, they say, their findings help to explain the belief of many livestockmen that cattle make poorer gains during rainy, cloudy weather.

(In attempting to account for the poor performance of cattle during these periods, livestockmen have sometimes placed the blame on the increased amount of water in the forage.)

Shade increased the moisture content of forage about 8%, the research at Tifton showed. It was also found that water adhering to the surface of the grass further increased the amount of water ingested by the animals.

Of greater importance from the standpoint of animal weight gains, however, may be the sharp decrease in available carbohydrates and the increase in lignin (a woody plant material) which, in turn, should decrease the digestibility of all constituents in the herbage. Animals consuming such forage could be expected to make poorer gains.

At moderate fertility levels of the type generally used in the Georgia area (less than 200 pounds of nitrogen per acre), a one-third reduction of sunlight with artificial cotton-cloth shading did not greatly affect the yield, persistence, or chemical composition of Coastal Bermuda.

Increased shading—obtained with two and three layers of cotton cloth—resulted in higher moisture content, lignin, crude protein, phosphorus, calcium, and magnesium of green grass.

While intense shading had no effect on cellulose, it did decrease the available carbohydrates to 57% of normal.

At very high nitrogen levels, shading—which reduced light to one-third that of sunlight—lowered the available carbohydrates to 76% of normal but raised the phosphorcus content.

Experiments were also made to determine the effect of trees on pasture areas. It was found that grass will give satisfactory performance as long as pine trees are small and spaced so that direct sunlight strikes the grass during part of each day.

However the studies showed that when the trees reach considerable size and begin to close the canopy, Coastal Bermuda can be expected to make little growth.

Annual Poultry Institute Slated

THE 18TH ANNUAL Florida Poultry Institute will be held August 17-22 at Camp McQuarrie.

"Shop talk," fellowship, recreation, motion pictures, swimming, boating, and fishing combine to make this the big week of the year for the poultrymen of Florida, neighboring states, and Cuba.

National and state poultry leaders will head the list of speakers. The week's program will be made available at a later date.

Detailed information about the Institute may be obtained by writing: J. S. Moore, Extension Poultryman, University of Florida, Gainesville.

The annual Institute is sponsored by the Florida Agricultural Extension Service in cooperation with other state agencies and the several poultry associations in the state.

"Hauling in rocky fields makes me

EXTRA GLAD I'VE GOT FIRESTONES!"

Mr. McWilliams (right) talks tires with his Tuscumbia Firestone representative Woody Walker.

says John H. McWilliams, Tuscumbia, Alabama. "I've been using Firestones for 15 years, and I'd recommend 'em to anybody. The Transports on the truck give me very good wear. Our worst problem around here is rocky fields and they don't seem to bother Firestones much. I have to use two trucks steadily during harvest seasons, and then I'm extra glad I've got Firestones. They're that dependable."

Farmers all over the country are finding Firestone truck tires save them money! It's only natural, too, because they're built with Firestone Rubber-X, the longest-wearing rubber ever used in Firestone tires! With Firestone S/F (Shock-Fortified) cord, they stand up to the hardest knocks farm tires have to take! And there's a Firestone tire for every farm truck from half-ton pickups to heavyweight haulers. If you want extra low-cost mileage for farm to market runs, buy the famous Firestone Transport tire. For positive traction in muddy feed lots, on slippery roads or in soft fields, economical Firestone All Traction or Super All Traction tires are your best buy.

See your Firestone Dealer or Store and find out how Firestone truck tires give you extra service at no extra cost! See the complete line of Firestone tractor and implement tires, too. And remember, the Firestone Free New Tractor Tire Loaner Service keeps your tractors working while your Firestone Dealer or Store retreads or repairs your old tires.

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